



ANSWER KEY



TARGETING MATHEMATICS



For Class
6-7-8



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CH. 1 KNOWING OUR NUMBERS Exercise 1.1 1. (i) Two thousand one hundred twenty seven (ii) Forty thousand and twenty four (iii) Thirty two thousand three hundred forty one (iv) Four thousand seven hundred forty eight (v) Eighty three thousand eight hundred forty five 2. (i) 7778 (ii) 2427 (iii) 9218 (iv) 6402 (v) 7761 3. (i) $>$ (ii) $>$ (iii) $<$ (iv) $<$ (v) $>$ 4. (i) 31210, 32570, 32586, 33465 (ii) 90046, 90304, 90403, 90406 (iii) 271116, 271210, 271218, 271316 5. (i) 198109, 189910, 189901, 189019 (ii) 4850, 4550, 3724, 3721 (iii) 24380, 24230, 22260, 22180 6. (i) 188 (ii) 3216 (iii) 11871 (iv) 12316 7. (i) 69 (ii) 784 (iii) 2131 (iv) 10198 **Exercise 1.2** 1. (i) (a) (ii) (d) (iii) (a) 2. (i) 8 lac or 8,00,000 (ii) 8 thousand or 8,000 (iii) 80 lakhs or 80,00,000 (iv) 80 thousand or 80,000 (v) 8 lakhs or 8,00,000 3. (i) 420377 (ii) 7304052 (iii) 9702035 4. 76540 5. 10234 **Exercise 1.3** 1. (i) 10 (ii) 100 (iii) 100 (iv) 10 2. (i) Two million, three hundred and eighty six thousand and twelve (ii) Forty eight million, two hundred thirty five thousand, one hundred twenty seven (iii) Seven billion, three hundred million, one hundred thousand and four hundred (iv) Four billion, two hundred sixty million, three hundred and two thousand, three hundred seventy nine 3. (i) 3,45,002 (ii) 507,012,084 (iii) 68,045,765 (iv) 5,025,054,000 4. (b) 5. (i) 15696 (ii) 87123 (iii) 7600032 (iv) 756178059 **Exercise 1.4** 1. (i) 139640 2. 256.5 km 3. (i) 9757013 (ii) 18291693 4. 334104374 5. 9760393 6. 62050 km 7. 1 kg 575 gm **Exercise 1.5** 1. (i) 1700 (ii) 48,000 (iii) 500 2. (i) 200 (ii) 400 (iii) 900 (iv) 400 (v) 600 (vi) 500 3. (i) 80 (ii) 120 (iii) 150 (iv) 110 (v) 1060 (vi) 360 4. (i) 30 (ii) 60 (iii) 150 (iv) 170 5. (i) 500 (ii) 3500 (iii) 7200 (iv) 800 **Exercise 1.6** 1. (i) 3480 (ii) 1950 (iii) 3170 (iv) 6540 (v) 4790 (vi) 3580 2. (i) 84400 (ii) 233200 (iii) 91100 (iv) 54600 (v) 167200 (vi) 69200 3. (i) 1176000000 (ii) 2256000000 (iii) 696000000 (iv) 2021000000 **Exercise 1.7** 1. (i) 80 (ii) 10 (iii) 30 (iv) 30 (v) 40 (vi) 30 2. (i) 40 (ii) 52 (iii) 888 (iv) 664 (v) 28 (vi) 210 (vii) 28 (viii) 41 **Exercise 1.8** 1. (a) XIV (b) VIII (c) V (d) XII (e) XVIII (f) XX (g) XXV (h) XXX (i) XXXII (j) XL 2. (a) 26 (b) 35 (c) 34 (d) 73 (e) 99 (f) 92 3. (a) $>$ (b) $>$ (c) $<$ (d) $<$

CH. 2 WHOLE NUMBERS Exercise 2.1 1. 0 2. 1 3. 17 4. 0 5. (i) 2550902 (ii) 102200 (iii) 107820 (iv) 2783482 (v) 2178329 (vi) 507329 6. (i) 999 (ii) 39999 (iii) 324831 (iv) 397,9999 (v) 5088999 (vi) 9999 **Exercise 2.2** 1. (i) $287 + 5943 = 8814$ (ii) $9243 + 12420 = 21663$ (iii) $4879 + 4332 = 9211$ (iv) $2443 + 4784 = 7227$ 2. (i) 4789 (ii) 0 (iii) 15881 (iv) 5762 (v) 1845 (vi) 1715 3. 0 4. Any whole number except 0 5. (d) **Exercise 2.3** 1. (i) 13 (ii) 172 (iii) 32 (iv) 738 3. 338425 4. 1 5. 990001 **Exercise 2.4** 1. (i) 3355800 (ii) 111768000 2. (i) 4480 (ii) 239184 (iii) 2817290 (iv) 7844231 3. (i) 686 (ii) 940680 (iii) 30848 (iv) 5092902 4. 0 5. 600 **Exercise 2.5** 1. (i) 0 (ii) 83482 (iii) 99 (iv) 735 2. 99828 3. (i) 1130.67 (ii) 1674 (iii) 75050.5 (iv) 126458.67 4. (i) 1003 (ii) 739 (iii) 889 (iv) 3016.33 5. 4 rows **Exercise 2.6** 1. (i) (a) 1 (b) 121 (c) 12321 (d) 1234321 (ii) (a) 4 (b) 484 (c) 49284 (d) 4937284 2. (i) (e) $12345 \times 7 + 5 = 86420$ (f) $123456 \times 7 + 6 = 864198$ (ii) (e) $12345 \times 15 + 5 = 185180$ (f) $123456 \times 15 + 6 = 1851846$

CH. 3 PLAYING WITH NUMBERS Exercise 3.1 1. (i) 72 (ii) 25 (iii) 52 (iv) 28 (v) 0 (vi) 8 (vii) 215 (viii) 64 **Exercise 3.2** 1. (i) $32 = 1 \times 32$, 2×16 , 4×8 (ii) $84 = 1 \times 84$, 2×42 , 3×28 , 4×21 , 6×14 , 7×12

(iii) $72 = 1 \times 72, 2 \times 36, 3 \times 24, 4 \times 18, 6 \times 12, 8 \times 9$ (iv) $19 = 1 \times 19$ (v) $28 = 1 \times 28, 2 \times 14, 4 \times 7$ 2. (i) 10, 15, 20, 25 (ii) 140, 210, 280, 350 (iii) 22, 33, 44, 55 (iv) 28, 42, 56, 70 (v) 40, 60, 80, 100 (vi) 70, 105, 140, 175 (vii) 30, 45, 60, 75 3. 18 and 2 4. 16 and 3 5. $17 \times 10001 = 170017$ 6. Even Number – 28, 10, 34, 40, 58 Odd Number – 25, 29, 15, 47, 107 7. Prime Numbers – 2, 3, 5, 7, 11, 13, 17, 19, 23 Composite Numbers – 4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, 21, 22, 24 8. (i) $7 + 5$ (ii) $23 + 13$ (iii) $47 + 13$ (iv) $97 + 23$ **Exercise 3.3** 1. (i) two, 4 (ii) 6 (iii) 5 (iv) 9 (v) 15 2. (i) 2, 3, 5, 7, 11, 13, 17, 19, 23, 29 (ii) 71, 73, 79, 83, 89, 97, 101, 103, 107, 109, 113, 121, 127, 129, 131, 137, 139, 141, 143, 147, 149 3. (i) 2 (ii) 97 (iii) 9 (iv) 71 and 73 (v) 1 **Exercise 3.4** 1. (i), (iii) 2. (i), (iii) 3. (i), (iii) 4. (i), (iii) 5. (i), (iii) 6. (i), (iii) 7. (i), (iv) 8. (i), (iii) 9. (ii), (iv) 10. (ii), (iii), (iv) 11. (i) 2 and 8 (ii) 0 and 9 12. No, 365 is not a prime no. **Exercise 3.5** 1. (i) $2 \times 3 \times 5 \times 7$ (ii) $2 \times 2 \times 2 \times 2 \times 3$ (iii) $3 \times 3 \times 3 \times 3$ (iv) $2 \times 5 \times 19$ (v) $5 \times 7 \times 11$ (vi) $2 \times 2 \times 2 \times 7 \times 13$ (vii) $2 \times 2 \times 221$ (viii) $2 \times 2 \times 2 \times 5 \times 5 \times 5$ (ix) $5 \times 5 \times 7 \times 7$ (x) $2 \times 2 \times 5 \times 7 \times 11$ 2. (i) $2 \times 2 \times 2 \times 2 \times 7 \times 7 \times 11$ (ii) $2 \times 3 \times 5 \times 187$ **Exercise 3.6** 1. 12 2. 36 3. 94 4. 12 5. 31 **Exercise 3.7** 1. (a) 12 (b) 36 (c) 24 (d) 90 (e) 80 2. (a) 48 (b) 180 (c) 5376 (d) 6000 3. (a) 1080 (b) 100 (c) 1920 (d) 81216 **Exercise 3.8** 1. HCF = 24, LCM = 360 2. 117 3. No

CH. 4 NEGATIVE NUMBERS AND INTEGERS **Exercise 4.1** 1. (a) Increase in population (b) – ₹ 600 (c) + 700 m (d) – 25 km (e) + ₹ 25,00 2. (a) – 19 (b) + ₹ 975 (c) + 150 m (d) – ₹ 510 3.



4. (a) –2, –1, 0, 1 (b) –1, 0, 1, 2 (c) –3, –2, –1, 0, 1, 2, 3, 4 (d) 0, 1, 2, 3 5. (a) $>$ (b) $>$ (c) $<$ (d) $<$ (e) $>$ (f) $>$ 6. (a) –4, –3, –2, 2, 3, 4 (b) –9, –7, –5, –3, 0, 4, 5 (c) –5, –4, –2, 3, 4, 5 (d) –8, –7, –6, –2, 1, 7, 8 7. (a) 37 (b) 0 (c) –44 (d) –47 (e) 48 (f) 50 (g) –40 (h) –51 **Exercise 4.2** 1. (a) $<$ (b) $>$ (c) $<$ (d) $>$ (e) $<$ (f) $>$ 2. (a) 3 (b) –4 (c) –1 (d) 2 (e) 11 (f) –2 3. (a) 5, 7 (b) –6, –8 (c) –2, –6 (d) –5, 0 4. –17, –16, –15, –14 5. –13, –14, –15, –16 6. (a) –10, –7, –2, 0, 1, 3, 10 (b) –7, –3, –1, 0, 2, 5 7. (a) 5, 4, 1, –1, –2, –6 (b) 37, 2, –4, –5, –8 **Exercise 4.3** 1. (a) –14 (b) –18 (c) 5 (d) 2 (e) –14 (f) 10 2. (a) 4 (b) 29 (c) 8 (d) –118 (e) –401 (f) –100 3. (a) –923 (b) –608 (c) –459 (d) –501 4. (a) 50 (b) 60 5. (a) –61 (b) –3 (c) –31 (d) –26 6. –11 7. 12 **Exercise 4.4** 1. (a) –4 (b) 10 (c) –10 (d) 4 2. (a) –914 (b) 507 (c) 1251 (d) 7834 (e) 256 (f) –496 (g) 296 (h) –454 3. –432 4. –394 5. (a) 27 (b) –33 (c) 18 (d) –24

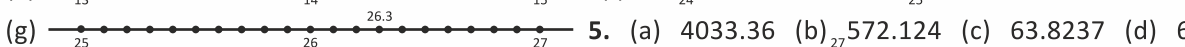
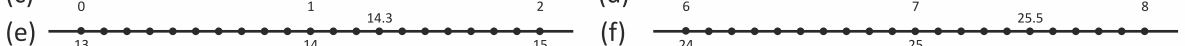
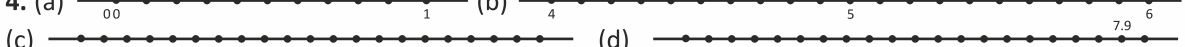
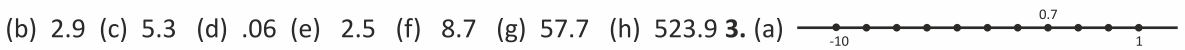
CH. 5 FRACTION **Exercise 5.1** 1. (a) $\frac{1}{3}$ (b) $\frac{4}{6}$ (c) $\frac{4}{10}$ 2. (a) (b) (c)

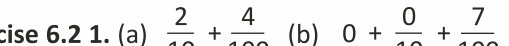
3. $\frac{1}{2}$ 4. $\frac{1}{9}$ 5. $\frac{4}{9}$ 6. $\frac{1}{2}$ 7. $\frac{1}{2}$ 8. $\frac{3}{5}$ 9. $\frac{5}{11}$ 10. (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{3}$ (d) $\frac{1}{3}$ **Exercise 5.2** 1. 2. (i) $\frac{17}{5}$ (ii) $\frac{31}{4}$ (iii) $\frac{40}{7}$ (iv) $\frac{22}{9}$ (v) $\frac{53}{5}$ (vi) $\frac{66}{8}$ (vii) $\frac{68}{11}$ (viii) $\frac{34}{3}$ 3. (i) $4\frac{3}{4}$ (ii) $6\frac{2}{3}$ (iii) $2\frac{3}{7}$ (iv) $5\frac{3}{5}$ (v) $3\frac{2}{11}$ (vi) $4\frac{6}{9}$ **Exercise 5.3** 1. $\frac{4}{6}, \frac{6}{9}, \frac{8}{12}$ 2. 3

3. (i) 15 (ii) 40 (iii) 9 (iv) 3 4. (i) and (ii) are equivalent fractions 5. (i) $\frac{14}{89}$ (ii) $\frac{169}{221}$ 6. (i) $\frac{3}{5}$ (ii) $\frac{1}{2}$ **Exercise 5.4** 1. (i) $<$ (ii) $>$ (iii) $>$ (iv) $>$ (v) $<$ (vi) $>$ 2. (i) $<$ (ii) $<$ (iii) $>$ (iv) $<$ 3. (i) $\frac{2}{7}$ (smaller) (ii) $\frac{4}{11}$ (smaller) (iii) $\frac{7}{9}$ (smaller) (iv) $\frac{2}{5}$ (smaller) 4. $\frac{3}{5}, \frac{4}{5}, \frac{7}{5}, \frac{8}{5}$ (ascending) 5. $\frac{8}{5}, \frac{7}{5}, \frac{4}{5}, \frac{3}{5}$ (descending) 5. Class III A 6. Ruchi 7. (i) $\frac{1}{6}$ (ii) $\frac{1}{5}$ (iii) $\frac{4}{25}$ (iv) $\frac{4}{25}$ (v) $\frac{1}{6}$ (vi) $\frac{1}{5}$ (vii) $\frac{1}{5}$ (viii) $\frac{1}{6}$ (ix) $\frac{4}{25}$ (x) $\frac{1}{6}$

- (xi) $\frac{1}{6}$ (xii) $\frac{4}{25}$ **Exercise 5.5 1.** (i) $\frac{18}{23}$ (ii) $1\frac{7}{17}$ (iii) $\frac{2}{9}$ (iv) $\frac{4}{7}$ (v) $\frac{1}{2}$ (vi) $\frac{2}{13}$ **2.** (i) $\frac{9}{11}$ (ii) $\frac{31}{36}$ (iii) $\frac{11}{24}$
 (iv) $1\frac{71}{150}$ **3.** (i) $3\frac{3}{4}$ (ii) $6\frac{7}{20}$ (iii) $7\frac{19}{24}$ (iv) $6\frac{23}{30}$ **4.** (i) $\frac{-35}{39}$ (ii) $\frac{1}{8}$ (iii) $\frac{23}{60}$ (iv) $\frac{3}{22}$ (v) $\frac{3}{10}$ (vi) $\frac{1}{6}$ **5.** (i) $\frac{7}{10}$
 (ii) $\frac{-3}{8}$ (iii) $1\frac{11}{20}$ (iv) $1\frac{7}{12}$ **7.** (i) $5\frac{9}{20}$ (ii) $2\frac{2}{10}$ (iii) $6\frac{5}{36}$ (iv) $3\frac{7}{12}$

CH. 5 DECIMALS Exercise 6.1 1. (a) 5.4 (b) 17.20 (c) 0.67 (d) 410.0428 (e) 344.4 **2.** (a) 0.7



(g)  **5.** (a) 4033.36 (b) $27\frac{572.124}{1000}$ (c) 63.8237 (d) 6

Exercise 6.2 1. (a) $\frac{2}{10} + \frac{4}{100}$ (b) $0 + \frac{0}{10} + \frac{7}{100} + \frac{2}{1000}$ (c) $0 + \frac{0}{10} + \frac{7}{100} + \frac{2}{1000}$ (d) $0 + \frac{0}{10} + \frac{4}{100}$

+ $\frac{3}{1000}$ (e) $0 + \frac{2}{10} + \frac{0}{100} + \frac{0}{1000} + \frac{5}{10000}$ (f) $0 + \frac{5}{10} + \frac{0}{100} + \frac{0}{1000} + \frac{7}{10000}$ **2.** (a) 0.2 (b) 0.28

(c) 0.75 (d) 2.33 (e) 2.4 (f) 3.85 (g) 5.24 (h) 4.42 **3.** (a) < (b) > (c) < (d) = (e) > (>) **4.** (a) 1.743, 1.743, 1.473, 1.437, 1.347 (b) 12.965, 9.730, 9.703, 9.370, 9.307 **5.** (a) 7.140, 7.30, 7.41, 8.3, 8.35 (b) 12.659, 12.695, 12.965, 13.596, 13.968 **6.** (a) 1.80, 2.15, 3.70, 10.95 (b) 4.27, 3.19, 3.60, 0.09 **7.** (a) 1.25 (b) 1.26 (c) 0.55 (d) 0.64 (e) 0.325 (f) 2.34 (g) 0.024 (h) 0.042

Exercise 6.3 1. (a) 0.08 (b) 0.45 (c) 1.10 (d) 28.5 (e) 92.10 **2.** (a) 0.6 (b) 6 (c) 15.9 (d) 0.8 **3.** (a) 0.18 (b) 0.20 (c) 2.35 (d) 3.25 **4.** (a) 0.018 (b) 0.327 (c) 9.999 (d) 20.5 **5.** (a) 0.009 (b) 0.2 (c) 3.295 (d) 8.008 **6.** (a) 0.028 (b) 0.748 (c) 2.465 (d) 4.052

Exercise 6.4 1. (a) 442.898 (b) 38.587 (c) 113.85 (d) 13.32 (e) 41.633 (f) 10.01 **2.** (a) 6.66 (b) 8.014 (c) 64.25 (d) 1156 (e) 128.75 **3.** (a) 349.367 (b) 41.131 (c) 69.085 (d) 296.455

CH. 7 ALGEBRA Exercise 7.1 1. (i) 5n (ii) 6n (iii) 6n **2.** (x + 3) **3.** (x - 5) **4.** (3x - 100) **5.** (10x - 3) **6.** (x - 6x) **Exercise 7.2 1.** (a) x + y (b) u - x (c) 2x (d) $\frac{1}{4}z$ (e) a - b (f) $\frac{2-x}{y}$ **2.** 2 **3.** ₹ 75 **4.** 210 marks **5.** 5x + 10y **6.** x(y - z)

CH. 8 EQUATIONS Exercise 8.1 1. (a) x + 5 = 12 (b) y + 5 = 16 (c) m × 95 - 6 = 12 (d) 7x = 42 (e) $\frac{1}{4}x + 7 = 31$ (f) 17 - 2x = 11 **2.** (a) 11 (b) -2 (c) 15 (d) 10 (e) -4 (f) $\frac{1}{3}n$ (g) 0 (h) $\frac{8}{5}$ (i) 5 (j) 13 (k) 10 (l) 6

Exercise 8.2 (i) 5 (ii) -12 (iii) 11 (iv) -1 (v) 9 (vi) 6 (vii) 7 (viii) 14 (ix) -3 (x) 12 (xi) $\frac{3}{2}$ (xii) -5

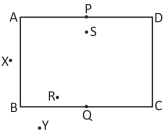
CH. 9 RATIO Exercise 9.1 1. (i) 2 : 3 (ii) 3 : 5 **2.** (i) 23 : 7 (ii) 7 : 23 (iii) 1 : 2 (iv) 23 : 30 **3.** (i) 3 : 4 (ii) 6 : 5 (iii) 3 : 4 (iv) 1 : 4 (v) 1 : 8 (vi) 4 : 1 (vii) 2 : 1 (viii) 3 : 10 (ix) 10 : 1 (x) 3 : 1 (xi) 31 : 406 **4.** 1 : 17 **5.** 1 : 2


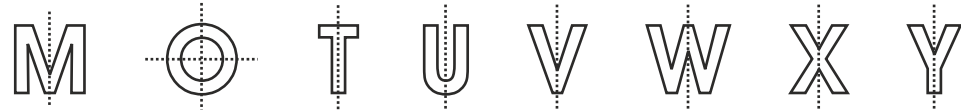
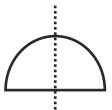
6. (i) 25 : 35, 30 : 42 (ii) 9 : 33, 12 : 44 (iii) 60 : 90, 80 : 120 (iv) 49 : 28, 56 : 32 **7.** (i) 4 : 7, 7 : 9 (ii) 3 : 7, 2 : 3 (iii) 1 : 3, 5 : 9 (iv) 2 : 5, 6 : 7 **8.** (i) 3 : 7, 5 : 14, 5 : 21, 1 : 6 (ii) 5 : 8, 4 : 5, 2 : 3, 1 : 2 **9.** (i) 7 : 8 > 2 : 3 (ii) 11 : 21 < 19 : 28 (iii) 7 : 16 < 13 : 24 (iv) 4 : 3, 7 : 3 > 4 : 7 **Exercise 9.2 1.** (i) Yes (ii) Yes (iii) Yes (iv) Yes (v) Yes (vi) No **2.** (i) No (ii) Yes (iii) No (iv) No **3.** (i) 5 (ii) 2 (iii) 60 (iv) 105 (v) 560 **4.** 525 is the fourth term

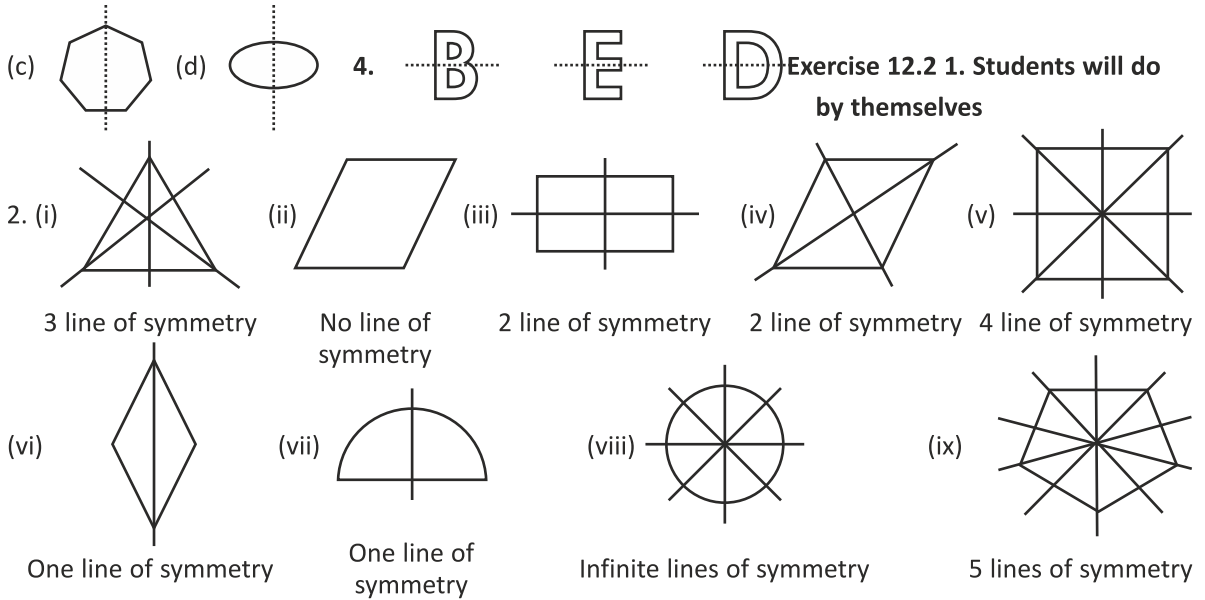
5. (i) 1 : 4 (ii) 49 : 36 **Exercise 9.3 1.** ₹ 81 **2.** 450 kg **3.** 4 km **4.** 360 persons **5.** ₹ 48125 **6.** 5.5 kg **7.** 2.5 lt

8. 45.04 seconds

CH. 10 Understanding Geometrical Shapes Exercise 10.1 1. (i) $AB > AD$ (ii) $CD < AC$ (iii) $AC = BD$ (iv) $AO = CO$ (v) $AB > CO$ (vi) $AO < BC$ 2. Measure yourself 3. (i) 1 : 15 (ii) 5 : 30 4. (i) $\frac{2}{13}$ revolution (ii) $\frac{1}{4}$ revolution 5. (i) 2 right angles (ii) 2 right angles (iii) 1 right angle (iv) 3 right angles 6. (i) 3 right angles (ii) 1 right angle **Exercise 10.2** 1. (a) right angle (b) reflex angle (c) acute angle (d) obtuse angle (e) straight angle 2. (i) (a) $\angle BCD =$ acute angle (b) $\angle CDA =$ obtuse angle (c) $\angle DAB =$ acute angle (d) $\angle ABC =$ obtuse angle (ii) (a) $\angle PQR =$ acute angle (b) $\angle QOR =$ right angle (c) $\angle QPO =$ acute angle (d) $\angle OSR =$ acute angle **Exercise 10.3** 1. (i) Square (ii) Kite (iii) Opposite, all (iv) parallelogram (v) right 2. (i) Rhombus (ii) Rectangle (iii) Square 3. (i) $AB = BC, AD = CD, AO = OC$ (ii) $\angle AOB = 90^\circ$ (iii) No 4. (i) True (ii) True (iii) True (iv) True (v) False (vi) False **Exercise 10.4** 1. (a) (d) (e) (f) are not polygon since they have curved face (i) Not polygon because it is open. 2. (a) (c) 3. (a) Cuboid (b) Cuboid (c) Sphere (d) Cube 4. (a) Ball, Football (b) Dice, sugar cube (c) ice-cream cone, joker's cap (d) A drum, roller (e) Brick, room 5. (i) e (ii) d (iii) b (iv) a (v) f (vi) c

CH. 11 Basic Geometrical Ideas Exercise 11.1 1. (i) object (ii) line segment (iii) plane (iv) with one common point (v) no, one, two 2. (i) A, B, C (ii) $\overline{AB}, \overline{BC}, \overline{AC}$ 3. (i) P, (ii) $\overline{AB}, \overline{PQ}$ (iii) $\overrightarrow{QA}, \overrightarrow{QB}, \overrightarrow{QP}$ (iv) \overleftrightarrow{AB} 4. $\overrightarrow{AX}, \overrightarrow{AY}, \overrightarrow{BX}, \overrightarrow{BY}, \overrightarrow{CX}, \overrightarrow{CY}$ 5. (i) $l \parallel m, m \parallel n, l \parallel n$, (ii) $l, r; m, r; n, r; l, q; m, q; n, q$ (iii) p, n (iv) l, r (v) m, r (vi) l, q **Exercise 11.2** 1. (a) Sides – PQ, QR, RS, SP (b) Vertices – P, Q, R, S (c) Diagonals – PR, SQ (d) Adjacent sides – PQ, QR ; OR, SR ; SR ; SP ; SP ; PQ 2. (b), (f), (g) 3. (a) open curve (b) closed curve (c) closed curve (d) open curve (e) open curve (f) closed curve but not simple curve (g) open curve (h) closed curve but not simple 4. (b), (c), (e), (f) are polygons **Exercise 11.3** 1. (a) $\angle EOD, \angle DOC, \angle COB, \angle BOA, \angle EOC, \angle EOB, \angle EOA, \angle DOB, \angle DOA, \angle COA$ (b) $\angle ABC, \angle BCA, \angle CAB$ (c) $\angle ADC, \angle DCB, \angle CBA, \angle BAD$ (d) $\angle DAB, \angle ABC, \angle BCD, \angle CDA, \angle CDB, \angle CBC, \angle ADB, \angle ABD$ 2. (i) Angle $\angle ABC$, Vertex B, arm \overrightarrow{BA} , arm \overrightarrow{BC} (ii) (a) Point D, J, G (b) Point I, K (c) Point H, E, F 3. (i) $\angle EOA, \angle AOB, \angle BOC, \angle COD, \angle DOE$ **Exercise 11.4** 1. (i) three, three (ii) Three parts and three angles (iii) BC (iv) $\angle P$ 2. (a), (c), (d) 3. (i) $\triangle APB, \triangle PBC, \triangle PDA, \triangle ABC, \triangle DAB$ (ii) $\angle D, \angle P, \angle C$ (iii) Segments – AB, BC, PC, AP, AD, DP (iv) $\triangle APB, \triangle PCB, \triangle PAD$ 4. (i) T, O, B, L, A (ii) B, L, A (iii) T, O **Exercise 11.5** 1. (i) four (ii) 4, 4, 4 (iii) opposites (iv) Angle 2. (i) Opposite sides – AB, DC ; AD, BC (ii) Four pair of adjacent sides – AB, BC ; BC, CD ; CD, AD ; AD, AB (iii) Two pair of opposite angles – $\angle A, \angle C$; $\angle B, \angle D$ (iv) Four pairs of adjacent angles – $\angle A, \angle B$; $\angle B, \angle C$; $\angle C, \angle D$; $\angle A, \angle D$ 3.  diagram **Exercise 11.6** 1. (i) Circle (ii) Circle 2. (i) Three radii BC, AC, CR (ii) Three chords $\overline{AB}, \overline{BR}, \overline{AR}$ (iii) A diameter AR (iv) Two minor arc BPR, arc BQA (v) Two sector ACB, BCR (3) (i) In its interior – A, F, C, J (ii) ON its exterior – I, E, C (iii) On the circle – G, B, H 4. (i) Equal (ii) Diameter (iii) Equal (iv) Two

CH. 12 SYMMETRY Exercise 12.1 1. (b) 2. 
 3. (a) 



CH. 13 DATA HANDLING Exercise 13.1 1. (i) 7 (ii) 12 2.

(i) 34 kg (ii) 24 kg, 25 kg, 29 kg, 33 kg, 36 kg (iii) 12 students 3.

Obs.	Tally Marks	Freq.
a	 I	11
b		3
c	 	9
d	 	7

Apple preferred by most of the students. Banana preferred by least of the students. **Exercise 13.2 1.** (i) Maliram sold 400 baskets (ii) Uday sold 150 baskets (iii) Bhagwan 200 baskets and Hanuman sold 350 (iv) 200 baskets 2. (i) Preeti has max. number of toys. Atul

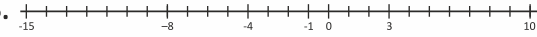
Obs.	Tally Marks	Freq.
24		1
25		1
26		3
28	 	6
29		1
30		2
32		4
33		1
34	 	7
35		3
36		1
	Total	30

has minimum no. of toys. (ii) 112 toys (iii) 4 toys 3. Students will do by themselves. 4. Students will do by themselves. **Exercise 13.3 1.** Students will do by themselves. 2. Students will do by themselves. 3. Students will do by themselves. 4. (a) Number of pupils in a year (b) No. of pupils (c) Number of pupil in each month (d) Pupil strength (e) April (f) September 5. Students will do by themselves. 6. Students will do by themselves.

CH. 14 MENSURATION Exercise 14.1 1. Length = 40 m, Breadth = 24 m 2. 360 m 3. Rahul covers more distance by 310 m 4. ₹ 22200 5. (i) 42.5 cm (ii) 21 cm (iii) 28 cm (iv) 35 cm 6. (i) 4.5 cm (ii) 6 cm (iii) 3.6 cm (iv) 3 cm 7. 630 cm **Exercise 14.2 1.** 128 m² 2. 120 m 3. 912 m² 4. ₹ 28800 5. 100 cm² 6. Cost of levelling ₹ 3500, cost of fencing ₹ 270. 7. 14m²

CH. 15 Construction Students will do by themselves.



CH. 1 INTEGERS Exercise 1.1 1. (a) (b) 2. (a) 3. (a) 4. (d) 5.  6. 11, -10, -8, -3, 4, -7 7. (a) 13 (b) 33 (c) -18 (d) 0 (e) 0 (f) 75 8. (a) 22 (b) -3 (c) 1 (d) -14 (e) 0 (f) -20 9. (a) $8 > 4 > 3 > -9 > -11 > -16$ (b) $25 > 15 > 1 > -3 > -7 > 25$ (c) $21 > 20 > 9 > 0 > -1 > -5$ 10. (a) $-21 < -18 < -10 < 1 < 7 < 14$ (b) $-16 < -9 < -3 < -1 < 0 < 3$ (c) $-27 < -8 < -5 < 4 < 8 < 16$ 11. (a) $+8^\circ\text{C}$ (b) 5°C (c) 10°C **Exercise 1.2** 1. (a) 2. (c) 3. (b) 4. (b) 5. (b) 6. (c) 7. -600 8. 425 9. 462 10. -576 11. -594 12. 1296 13. 54 14. 11 15. -64 additive inverse 64 **Exercise 1.3** 1. (a) 2. (c) 3. (c) 4. (a) -1 (b) -21 (c) -44 (d) 0 5. (a) 135 (b) -300 (c) 0 (d) -108 6. (a) -3000 (b) 95000 (c) -16350 (d) -62500 7. 27°C 8. 11 meters deeper 9. (a) Loss ₹ 1000 (b) 4312.5 bags of white cement **Exercise 1.4** 1. (d) 2. (a) 3. (a) 4. (c) 5. (a) 6. (a) 2 (b) -1 (c) -27 (d) 1 7. (10,2) ; (15,3) ; (20,4) ; (25,5) 8. (a) -13 (b) -125 (c) 144 (d) -343 9. (a) i ; (b) vii ; (c) viii ; (d) iii ; (e) iv ; (f) vi ; (g) ii ; (h) v 10. (a) True (b) False (c) True (d) True (e) False (f) True (g) True (h) True 11. 20 12. 16 13. 1°C per hours.

CH. 2 FRACTION & DECIMALS Exercise 2.1 1. (b) 2. (d) 3. (a) 4. (a) $4\frac{3}{4}$ (b) $12\frac{1}{6}$ (c) $6\frac{3}{4}$ (d) $1\frac{5}{6}$ (e) $4\frac{1}{2}$ (f) 5 5. (a) $\frac{9}{8} > \frac{7}{8} > \frac{17}{24} > 1\frac{1}{3}$ (b) $\frac{8}{15} < \frac{3}{5} < \frac{11}{16} < \frac{5}{4}$ 6. (a) $\frac{9}{8} > \frac{7}{8} > \frac{17}{24} > \frac{7}{12}$ (b) $\frac{20}{21} > \frac{5}{7} > \frac{9}{14} > \frac{3}{8}$ 7. (a) $\frac{4}{5}$ (b) $\frac{20}{25}$ 8. $2\frac{13}{15}$ hour 9. $37\frac{2}{5}$ m 10. John, $\frac{1}{4}$ hour 11. $103\frac{5}{6}$ cm **Exercise 2.2** 1. (c) 2. (a) 3. (a) $\frac{5}{14}$ (b) $\frac{15}{64}$ (c) $\frac{8}{7}$ (d) $\frac{13}{10}$ (e) $\frac{224}{45}$ (f) $\frac{43}{2}$ 4. (a) $\frac{10}{189}$ (b) $19\frac{11}{16}$ (c) $\frac{2}{15}$ 5. (a) $\frac{4}{9}$ (b) $\frac{1}{49}$ (c) $\frac{6}{35}$ (d) $\frac{12}{169}$ (e) $\frac{5}{104}$ (f) $\frac{1}{19}$ 6. $\frac{1}{2}$ of $\frac{6}{7}$ 7. ₹ 30 $\frac{3}{20}$ 8. ₹ 98 $\frac{7}{9}$ 9. ₹ 987 10. (a) Cricket -9, (b) Hockey -18 (c) Football -18 11. $89\frac{1}{8}$ cm² **Exercise 2.3** 1. (d) 2. (a) 3. (a) 4. (d) 5. $\frac{1}{10}$ 6. $2\frac{7}{12}$ 7. $24\frac{3}{8}$ 8. $\frac{8}{9}$ 9. $4\frac{1}{2}$ 10. $10\frac{1}{2}$ 11. 3 12. $48\frac{24}{169}$ 13. (a) $\frac{1}{16}, \frac{1}{32}, \frac{1}{64}$ (b) $\frac{1}{81}, \frac{1}{243}, \frac{1}{729}$ (c) $\frac{5}{2}, \frac{5}{1}, \frac{10}{1}$ (d) $\frac{3}{3}, \frac{2}{3}, \frac{1}{3}$ 14. (a) = (b) < 15. 10 packets 16. 246 girls **Exercise 2.4** 1. (d) 2. (d) 3. (c) 4. (a) 5. $40 + 6 + \frac{2}{10} + \frac{3}{100}$ (b) $50 + 6 + \frac{1}{10} + \frac{2}{100} + \frac{3}{1000} + \frac{4}{10000}$ (c) $10 + \frac{1}{1000}$ 6. (a) 528.235 (b) 5625.1759 7. (a) $12.01 > 11.201 > 2.11 > 1.201$ (b) $3.3 > 3.03 > 3.003 > 0.03$ 8. (a) $0.092 < 1.09 < 3.039 < 3.32 < 3.478$ (b) $0.504 < 0.68 < 0.72 < 1.02$ 9. (a) 21.66 (b) 14.9 (c) 56.844 10. (a) 1.037 (b) 0.902 (c) 256.677 11. 6.8 litres 12. ₹ 170.23 13. 18.37 **Exercise 2.5** 1. (c) 2. (b) 3. (a) 4. (a) 34 (b) 54.5 (c) 145 (d) 4880 (e) 913 (f) 2063 5. (a) 4.5 (b) 82.6795 (c) 45.12008 (d) 1.0001 (e) 6 (f) 11.578 (g) 105.525 6. (a) 33.6474 (b) 97.29 7. ₹ 15070 8. ₹ 384.3 9. 311.85 km 10. 35.7 cm^2 **Exercise 2.6** 1. (a) 15.11 (b) 4.5 (c) 0.6 (d) 0.1 (e) 3.4 (f) 1.375 2. (a) 0.0009 (b) 0.0035 (c) 0.0055 (d) 0.48 (e) 0.1819 (f) 0.00634 3. (a) 50 (b) 1.25 (c) 8.6 (d) 1.2 (e) 120 (f) 4000 4. (a) 180 (b) 6.5 (c) 0.6 (d) 6.8 (e) 50.1 (f) 0.9 5. (a) 7.236 (b) 1.12 (c) 0.075 (d) 1.205 (e) 7.18 (f) 0.3096 6. (a) 7. (b) 8. (b) 9. 18 km 10. 8.5 m **Exercise 2.7** 1. (a) 6.163 km (b) 0.642 m (c) 0.3033 km 2. (a) 11000 m (b) 7350 m (c) 19030 cm 3. (a) 5200 gm (b) 0.725 gm (c) 5.85 dag 4. (a) 1.533 k/ (b) 0.021 k/ (c) 3 k/ 700 l 5. (a) 856 cl (b) 18 kl 500 ml (c) 8700 ml 6. (a) 3.020 g (b) 0.0312 dag (c) 1.003 kg 7. 3.250 kg 8. 4.250 l

CH. 3 RATIONAL NUMBER Exercise 3.1 1. (b) 2. (b) 3. (c) 4. (d) 5. (a) 6. (a) $\frac{-3}{2}$ (b) $\frac{4}{5}$ (c) $\frac{-2}{5}$ (d) $\frac{-15}{16}$
 8. (a) $N = -5$ $D = 23$ (b) $N = 11$ $D = -7$ (c) $N = 0$ $D = 1$ (d) $N = -2$ $D = 5$ 9. (a) $\frac{-6}{16}$, $\frac{-9}{24}$, $\frac{-12}{32}$ (b) $\frac{-2}{10}$, $\frac{-3}{15}$,
 $\frac{-4}{20}$ (c) $\frac{26}{22}$, $\frac{39}{33}$, $\frac{52}{44}$ 10. (a) $\frac{21}{14}$ (b) $\frac{15}{10}$ 11. (a) $\frac{4}{7}$ (b) $\frac{-23}{9}$ 12. (a) $x = 20$ (b) $x = -2$ **Exercise 3.2** 1. (a) $\frac{5}{9}$
 (b) $\frac{7}{-12}$ 2. (a) $\frac{4}{7}$ (b) $\frac{-5}{9}$ 3. (a) $\frac{-3}{7} > \frac{6}{-13}$ (b) $\frac{5}{-13} = \frac{-35}{91}$ (c) $\frac{-7}{8} < 0$ (d) $\frac{-8}{9} > \frac{-9}{10}$ 4. (a) $\frac{7}{10} < \frac{8}{5} < \frac{13}{30} < \frac{2}{5}$
 (b) $\frac{-7}{5} > \frac{-3}{4} > \frac{-1}{2} > 0$ 5. (a) $\frac{11}{12}$, $\frac{5}{11}$, $\frac{2}{5}$, $\frac{-1}{3}$ (b) $\frac{1}{3}$, -2 , $\frac{-13}{6}$, $\frac{8}{-3}$ 6. (a) $\frac{-21}{10}$,
 $\frac{-22}{10}$, $\frac{-23}{10}$, $\frac{-24}{10}$, $\frac{-25}{10}$ (b) $\frac{-19}{27}$, $\frac{-20}{27}$, $\frac{-21}{27}$, $\frac{-22}{27}$, $\frac{-23}{27}$

Exercise 3.3 1. (a) 2. (d) 3. (a) 4. (b) 5. $\frac{-1}{5}$ 6. -1 $\frac{1}{12}$ 7. (a) -2 $\frac{8}{9}$ (b) $\frac{-5}{24}$ 8. (a) $\frac{-11}{21}$ (b) $\frac{-26}{45}$ (c) 3 $\frac{4}{5}$
 9. 3 $\frac{2}{9}$ 10. $\frac{7}{12}$ 11. $\frac{8}{15}$ 12. $\frac{28}{99}$ 13. 4 $\frac{1}{4}$ **Exercise 3.4** 1. (a) 2. (c) 3. (b) 4. (a) $\frac{-35}{486}$ (b) $\frac{6}{49}$ 5. (a) -1 (b)
 $\frac{-133}{120}$ (c) $\frac{-5}{32}$ 6. (a) $\frac{35}{-72}$ (b) $\frac{1}{36}$ 7. (a) $\frac{1}{36}$ (b) $\frac{-45}{16}$ 8. $\frac{4}{45}$ 9. $\frac{1}{3}$ 10. $\frac{5}{-4}$ 11. $\frac{9}{4}$ m **Exercise 3.5** 1. (c) 2. (b) 3.
 (a) 4. (a) 0.347 (b) 0.208 (c) -9 (d) 3.89 (e) 0.125 5. (a) 1.16 (b) -0.214 (c) $1.\bar{7}$ (d) $0.52\bar{7}$ (e) 409.69
 6. (a) $\frac{1}{8}$ (b) $\frac{45}{8}$ (c) $\frac{637}{200}$ (d) $\frac{163}{40}$ (e) $\frac{149}{16}$

CH. 4 POWER AND EXPONENTS Exercise 4.1 1. (a) 2. (d) 3. (d) 4. (a) $5^3 \times 3^2 \times (-4)^2$ (b) $(-7)^4$ (c) $\left(\frac{9}{11}\right)^3$
 (d) a^4b^5 5. (a) 33 (b) -1800 (c) $\frac{-8}{2000}$ (d) 10125 6. (a) 3375 (b) 20736 (c) $\frac{-32}{243}$ (d) $\frac{256}{625}$ (e) $\frac{8}{1331}$ 7. (a) $\frac{4}{49}$
 (b) $\frac{14}{81}$ 8. (a) $\left(\frac{3}{-2}\right)^2$ (b) $\left(\frac{7}{-2}\right)^4$ (c) $\left(\frac{11}{-5}\right)^{11}$ 9. (a) -3125 (b) -2 (c) $x = 9$ 10. (a) $2.7 \times 10^{12} > 1.5 \times 10^8$ (b) 4×10^{14}
 $< 3 \times 10^{17}$ **Exercise 4.2** 1. (d) 2. (d) 3. (a) 4. (a) 4^{16} (b) $2^{30} \times 3^{15}$ (c) $\left(\frac{-7}{9}\right)^{16}$ 5. (a) 2^{14} (b) $(xy)^4$ (c) 1 6. (a) $\frac{3}{64}$
 (b) $\left(\frac{1}{2}\right)^7$ (c) 2^8 (d) 7^2 7. (a) $\frac{15}{16}$ (b) $3^4 \times x^3$ (c) $2^3 \times 3^4$ (d) $\frac{2^6}{(11 \times 3)^2}$ 8. (a) $\left(\frac{3}{101}\right)$ (b) -1 (c) $\left(\frac{7}{3}\right)^2$ (d) 1 9. $\left(\frac{2}{3}\right)^6$
 10. (a) $(6)^5$ (b) $(11)^3$ (c) $2^2 \times 5^4$ (d) 10^5 **Exercise 4.3** 1. (a) 5.4×10^2 (b) 6.53×10^5 (c) 3.639×10^7 (d) 5.3543
 $\times 10^9$ (e) 5.08×10^{12} (f) 1.027×10^9 2. (a) $6 \times 10^5 + 8 \times 10^4 + 4 \times 10^4 + 5 \times 10^2 + 2$ (b) $5 \times 10^6 + 8 \times 10^5 + 7$
 $\times 10^3 + 2 \times 10^2 + 9 \times 10 + 4$ 3. (a) 8310049 (b) 65397 4. (a) 2.73×10^6 (b) 1.001×10^9 (c) 5.4387×10^2 5.
 3×10^8 m per sec 6. 3×10^{20} m

CH. 5 RATIO AND PROPORTION Exercise 5.1 1. (a) 2. (c) 3. (b) 4. (a) 10 : 3 (b) 200 : 1 (c) 10 : 3 5. (a) 37
 : 50 (b) 50 : 87 6. A : B : C = 35 : 21 : 24 7. Ritika = ₹ 1179.6 Priya = ₹ 1966, Ritu = ₹ 2752.4 8. 32 and 48
 9. (a) 1 : 3, 2 : 5, 3 : 7 (b) 3 : 11, 1 : 2, 2 : 3, 4 : 5 10. (a) $\frac{2}{3} > \frac{3}{5} > \frac{1}{4}$ (b) $\frac{5}{6} > \frac{4}{7} > \frac{1}{3}$ 11. Rohan ₹ 100,
 Sohan ₹ 60 12. 5 : 3 **Exercise 5.2** 1. (d) 2. (b) 3. (b) 4. (c) 5. (a) $x = 35$ (b) $x = 40$ m 6. (a) No (b) No 7. Not
 in proportion, 2 must be added 8. 182 female 9. Men 56 10. ₹ 3240 **Exercise 5.3** 1. ₹ 286 2. ₹ 4950 3. 6
 metres 4. 17 litres 5. 17.5 m 6. 21.5 litres

CH. 6 PERCENTAGE AND ITS APPLICATION Exercise 6.1 1. (c) 2. (b) 3. (b) 4. (a) 0.35 (b) 0.416 (c) 0.6 (d)
 0.2 (e) 0.37 (f) 1.26 (g) 0.375 (h) 0.9848 5. (a) 0.63 (b) 2.52 (c) 2.75 (d) 0.47 6. 59% 7. 12.5% 8. 5% 9.
 37.5% 10. 52.5% **Exercise 6.2** 1. (b) 2. (a) 3. (a) 4. (a) 12% (b) 5.416% (c) 0.525% 5. (a) 151.25 kg (b)
 15.5 litres (c) ₹ 175 6. 50% 7. 33.3% 8. 35000 9. 555.5 marks **Exercise 6.3** 1. (b) 2. (a) 3. (c) 4. (a) ₹
 45000 (b) ₹ 889 (c) ₹ 2105.26 (d) ₹ 6561 5. (a) Profit ₹ 1400, 4% (b) Profit ₹ 35500, 12.5% (c) Loss ₹
 1703, 10% (d) Profit ₹ 11, 33.3% 6. 25% 7. 46.15% 8. 15% gain 9. S.P. = ₹ 2576 **Exercise 6.4** 1. (b) 2. (a)
 3. (c) 4. 14% 5. ₹ 1856 6. ₹ 6320 7. 24 years 8. ₹ 3000 9. ₹ 3600

CH. 7 ALGEBRAIC EXPRESSIONS Exercise 7.1 1. (c) 2. (a) 3. (a) -11 (b) $5z$ (c) $50z^3y^2$ 4. (a) $\frac{1}{2}(x^2+y)$ (b) $\frac{1}{2}xy^2$ (c) x^2-xy (d) $2(x+y) - ab^2$ 5. (a) Variable p,q Constant -16 (b) Variable p, q, r Constant $+ 25$ 6. (a) -17 (b) None 7. (a) Numerical Coeff. 7, 11 (b) Numerical Coeff. 10, 50 (c) Numerical Coeff. 2, 1, 5 (d) Numerical Coeff. 9, -1 , 1, 7 (e) Numerical Coeff. $\frac{22}{15}$, $\frac{1}{8}$ 8. (a) Trinomial (b) Binomials (c) Binomial (d) Binomial (e) Binomial (f) Monomial (g) Trinomial (h) Binomial 9. (a) Like terms (b) Unlike terms (c) Unlike terms (d) Unlike terms Exercise 7.2 1. (d) 2. (c) 3. (a) 4. (a) $7xy + 5$ (b) $2x + 3y + 6z$ (c) $8 + 3x^2y + 4xy^2$ (d) $3m - 4n - 3 - 3mn$ 5. (a) $2a^3 + 9a^2 + 4a$ (b) $4x^2 + 13x + 9$ 6. (a) $3a^3 - a^2 + 3$ (b) $4a^3 + 6a + 11$ Exercise 7.3 1. (c) 2. (b) 3. (a) $-8x^2y^2$ (b) $2b^2$ (c) $xy - 13x^2 - 14y^2$ (d) $\frac{-13}{15} x^2y^2z^2$ 4. (a) $2x + 13y + 15z$ (b) $6a + 12b - 4c$ (c) $\frac{1}{10}x^2 + 2xy + \frac{1}{10}y^2$ (d) $2p^2 + 3pq - 2q^2 + 6$ 5. $2x^2 + y^2 - 1$ 6. $A - B - C = 0$ 7. $2x + y - 5z$ 8. $12x - 2$ 9. $x^3 - x^2 + x - 3$ Exercise 7.4 1. (a) 2. (d) 3. (a) 0 (b) 32 (c) 16 4. (a) 10 (b) -2 (c) 4 5. (a) 0 (b) 24 6. (a) $\frac{1}{2}x^2 + 2xy + \frac{1}{3}y^2$ (b) $2p^2 + 3pq - 2q^2 + 6$ (c) $6xy - 13x^2 + 12y^2$ (d) $6a + 12b + 4c$ (e) $23xy - 3x^2 - 14y^2$ (f) $4m^2 - 9mn + 5$ 7. 12 Exercise 7.5 1. 21, 21, $n(n+1)/2$ 2. (a) $3n + 1$ (b) $5n + 2$ (c) $5n + 1$ 3. (a) $C = nx$ (b) $A + B + C = 180^\circ$ 4. (a) 1, 3, 5, 7, 9, 11 (b) 5, 9, 13, 17, 21, 25 (c) 17, 24, 31, 38, 45, 52 (d) 2, 5, 10, 17, 26, 37

CH. 8 LINER EQUATIONS Exercise 8.1 1. (b) 2. (d) 3. (a) $\frac{x}{3} + 7 = 12$ (b) $3x + 5 = 17$ (c) $2b - 5 = 3$ (d) $3 + \frac{2}{7}y = -3$ 4. (a) four subtracted from m in 1 (b) four-fifth of a number is 12 (c) Two times of m is 16 (d) 3 added to a number gives 7 5. (a) $3x = 3 + 2x$ (b) $\frac{m}{2} - 5 = 0$ (c) $5a + 7b = 43$ (d) $a^2 - b^2 = 13$ 6. (a) No (b) Satisfies the equation (c) Satisfies the equation (d) No (e) Satisfies the equation Exercise 8.2 1. (d) 2. (a) 3. (a) $x = 2$ (b) $t = 2$ (c) $x = 4$ (d) $m = 12$ (e) $p = 16$ 4. (a) $x = 6$ (b) $x = 5$ (c) $x = 6$ (d) $m = -72$ (e) $y = \frac{55}{16}$ 5. $x + 2 = -2$, $\frac{x}{2} + 1 = 12x + 8 = 0$ Exercise 8.3 1. (c) 2. (d) 3. 26 4. 33 5. 16 6. 32 7. 15 8. Son's age = 10 years, Father's age = 40 years 9. 32 10. Sachin = 132 runs Rahul 66 runs 11. Length = 50 metre, breadth = 25 metre 12. Number of fruits trees are 15.

CH. 9 LINES AND ANGLES Exercise 9.1 1. (a) 2. (c) 3. (d) 4. (a) 63° (b) 41° (c) 18° 5. (a) 165° (b) 63° (c) 5° 6. 80° 7. 15° 8. (a) 118° (b) 50° (c) 50° (d) 60° (e) 60° (f) 15° Exercise 9.2 1. (iii) 2. (b) 3. (i) 4. $\angle DEF = 35^\circ$ 5. $\angle PQR = 120^\circ$ 6. $\angle PQR = 50^\circ$ 7. $\angle x = 70^\circ$ $\angle y = 70^\circ$ 8. $\angle x = 125^\circ$ $\angle y = 115^\circ$

CH. 10 THE TRIANGLE & ITS PROPERTIES Exercise 10.1 1. AD = Median AE = Attitude, AD \neq AE Exercise 10.2 1. (c) 2. (c) 3. (c) 4. Third angle 120° 5. $\angle a = 60^\circ$, $\angle b = 120^\circ$, $\angle c = 70^\circ$ 6. (a) Triangle is not possible (b) Triangle is not possible (c) Triangles are not possible 7. 360° 8. $\angle a = 118^\circ$, $\angle b = 118^\circ$, $\angle c = 32^\circ$, $\angle d = 30^\circ$ 9. $x = 15^\circ$, $\angle A = 30$, $\angle B = 135^\circ$, $\angle C = 15^\circ$ 10. $\angle P = 70^\circ$ 11. $\angle a = 130^\circ$, $\angle b = 130^\circ$, $\angle c = 20^\circ$ Exercise 10.3 1. 15 cm 2. Diagonal = 25 cm 3. (a) Right angled triangle (b) No 4. 60 m 5. 8 m 6. (i) $x = 7$ (ii) $x = 84$ (iii) $x = 41$ 7. 26 m 8. 7 m Exercise 10.4 1. (a) Possible (b) Not possible 2. 5 cm

CH. 11 CONSTRUCTIONS Students will be to themselves.

CH. 12 SYMMETRY Exercise 12.1 1. (b) 2. (d) 3. (d) 4. A scalene triangle, N, P 5. (a) No (b) 5 (c) No (d) Infinite number of line 6. (a) A (b) E Exercise 12.2 1. (a) 2. (d) 3. (b) 4. Circle, Equilateral triangle 5. square 6. 120° 7. Yes, because every line through the centre forms a line of symmetry and it has rotational symmetry around the centre for every angle. 8. 1. (a) No (b) 5 (c) No (d) Infinite

CH. 13 VISUALISING SOLID SHAPES Exercise 13.1 1. (b) 2. (d) 3. (a) 8 (b) 4 (c) 0 (d) 1 4. (a) Face (b) 6, 12, 8 (c) edge 5. (a) True (b) False (c) False 6. (a) 0 (b) 12 (c) 6 (d) 2

CH. 14 CONGRUENCE OF TRIANGLES Exercise 14.1 1. (a) No (b) No 2. (a) 3. (a) $\angle C = \angle F$ (b) DF (c) EF 4. (d) 5. (a) True (b) False (c) False (d) True **Exercise 14.2** 1. (b) 2. (c) 3. (b) 4. Yes, By SSS 5. Students will do by themselves. 6. (i) $\triangle PSR \cong \triangle RQP$ $\angle P \leftrightarrow \angle R$, $\angle S \leftrightarrow \angle Q$, $R \leftrightarrow P$ (ii) $\triangle ABC \cong \triangle ADC$ $A \leftrightarrow A$, $B \leftrightarrow D$, $C \leftrightarrow C$ (iii) $\triangle ABD \cong \triangle CDB$, $A \leftrightarrow C$, $B \leftrightarrow D$, $D \leftrightarrow B$ **Exercise 14.3** 1. Yes 2. (i) Yes (ii) No (iii) No (iv) Yes 3. Not congruent, length of the side 4. (i) Congruent, $\triangle ABC \cong \triangle DEF$ (ii) Congruent $\triangle ABC \cong \triangle FED$ 5. Yes, $\triangle ABC \cong \triangle CDA$ by ASA **Exercise 14.4** 1. Students will do by themselves. 2. No, $\triangle ABC \cong \triangle BED$, 3. (a) Yes, $\triangle DBE \cong \triangle DBF$ by RHS (b) $\angle DBF = \angle DBE$ **Exercise 14.5** 1. Students will do by themselves. 2. $\triangle SQP \cong \triangle QSR$ by SAS 3. (a) Not congruent (b) Not congruent 4. (a) $\triangle MLN \cong \triangle ZXY$ by SAS (b) $\triangle BAC \cong \triangle RQP$ by SAS 5. (a) Not congruent (b) $\triangle CBE \cong \triangle ABD$ by SAS

CH. 15 MENSURATION Exercise 15.1 1. (b) 2. (d) 3. (c) 4. side = 31 cm, square has more area 5. 4 times 6. ₹ 1728 7. ₹ 310 **Exercise 15.2** 1. (i) 12 cm^2 (ii) 10 cm^2 2. (i) 10 cm^2 (ii) 4 cm^2 (iii) 10 cm^2 3. (i) 20 cm (ii) 1.56 cm (iii) 87 cm^2 (iv) 40 cm 4. (i) 91.2 cm^2 (ii) 7.6 cm 5. Sides 31.25 m, 25 m, 6. area of $\triangle PQR = 24 \text{ cm}^2$ $PS = 4.8 \text{ cm}$ 7. area of $\triangle LMN = 108 \text{ cm}^2$, $MQ = 14.4 \text{ cm}$ 8. 3 cm 9. 10 cm **Exercise 15.3** 1. (c) 2. (a) 3. (b) 4. (i) 49 m (ii) 140 cm 5. 140.14 cm^2 6. 35.14 cm^2 7. 66 cm 8. 400 m 9. 130.68 cm^2 10. 57.75 cm^2 **Exercise 15.4** 1. (i) 5 No. of rounds (ii) ₹ 5257.45 2. Area of path = 230 m^2 3. 3163.2 m^2 4. ₹ 5925 5. Area of path 116 m^2 , Cost ₹ 8120 6. 245.75 m^2 7. Area of margin 256 cm^2 8. 15730 9. 1440 tiles

CH. 16 DATA HANDLING Exercise 16.1 1. (d) 2. (b) 3. (i) Age of oldest 58 year, age of the youngest 27 years (ii) Mean = 39 4. (i) The highest marks 45, The lowest marks 6 (ii) Range -39 5. (i) Mean 13.8 (ii) Range 22.2 mm 6. Mean 139.475 7. Included No. = 36 8. Player A = 13.75 Player B = 5 Player C = 11 **Exercise 16.2** 1. (c) 2. (a) 3. (a) 11 (b) 24.5 (c) 23 4. (a) 11.5 (b) 21 5. (a) 51 kg (b) 43 marks 6. (a) Mean 24, Median 23, Mode 24 (b) Mean 26, Median 26 Mode 26 **Exercise 16.3** 1. Students will do by themselves. 2. Students will do by themselves. 3. Students will do by themselves. 4. Students will do by themselves. 5. (a) No. of students in different club. (b) Music club (c) Literary club (d) Music club and Mathematics club **Exercise 16.4** 1. (b) 2. (a) 3. $\frac{2}{9}$ 4. $\frac{5}{8}$ 5. $\frac{1}{3}$ 6. (a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) $\frac{1}{8}$ (d) $\frac{1}{8}$ (e) 1 7. (i) Can happen (ii) Can happen (iii) Certain to happen (iv) Impossible 8. (i) $\frac{1}{10}$ (ii) $\frac{1}{2}$ (iii) $\frac{3}{10}$



CH. 1 RATIONAL NUMBERS Exercise 1 (A) 1. (i) -16 (ii) $\frac{-2}{9} < \frac{5}{12}$ (iii) $\frac{15}{19}$ (iv) $\frac{-14}{15}$ (v) 0 2. (i) False (ii) False (iii) True (iv) True (v) True 3. (i) $\frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \frac{15}{25}$ (ii) $\frac{-8}{10}, \frac{-12}{15}, \frac{-16}{20}, \frac{-20}{25}$ (iii) $\frac{4}{-14}, \frac{6}{-21}, \frac{8}{-28}, \frac{10}{-35}$ (iv) $\frac{-22}{24}, \frac{-33}{36}, \frac{-44}{48}, \frac{-55}{60}$ 4. (i) $\frac{8}{9} < \frac{12}{7}$ (ii) $\frac{2}{4} < \frac{5}{9}$ (iii) $\frac{5}{-11} < \frac{12}{15}$ (iv) $0 < \frac{5}{8}$ (v) $-1 < \frac{-15}{7}$ (vi) $\frac{-15}{12} < \frac{8}{5}$ 5. (i) $\frac{4}{9}$ (ii) $\frac{5}{2}$ (iii) 0 (iv) $\frac{15}{17}$ (v) $\frac{8}{9}$ (vi) 16 (viii) $\frac{2}{9}$ 6. (i) $\left| \frac{-5}{9} \right| < \left| \frac{8}{3} \right|$ (ii) $\left| \frac{6}{9} \right| < \left| \frac{-8}{-6} \right|$

Exercise 1 (B) 1. (i) $\frac{1}{3}$ (ii) 0 (iii) 0 (iv) Rational Number (v) Commutative 2. (i) False (ii) True (iii) True (iv) False 3. (i) $\frac{41}{63}$ (ii) $\frac{47}{36}$ (iii) $\frac{3}{10}$ (iv) $\frac{35}{36}$ 4. (i) $\frac{-163}{60}$ (ii) $\frac{578}{225}$ (iii) $\frac{23}{18}$ 5. Verified 6. Verified 7. (i) $\frac{-4}{7}$ (ii) 0 (iii) $\frac{-9}{17}$ (iv) $\frac{7}{89}$ (v) 257 (vi) $\frac{-789}{289}$ 8. (i) $\frac{13}{5}$ (ii) $\frac{122}{15}$ (iii) $\frac{59}{7}$ (iv) $\frac{-121}{105}$ 9. Verified 10. Verified 11. (i) $\frac{20}{33}$ 12. $\frac{41}{36}$ 13. $\frac{137}{12}$

Exercise 1 (C) 1. (i) 1 (ii) 1 (iii) 1 2. (i) False (ii) True (iii) True (iv) True 3. (i) $\frac{9}{13}$ (ii) $\frac{-55}{528}$ (iii) $\frac{104}{1485}$ (iv) $\frac{25}{49}$ (v) 1 4. (i) $\frac{-143}{168}$ (ii) $\frac{-85}{28}$ 5. Verified 6. Verified 7. Verified 8. Verified 9. (i) $\frac{9}{154}$ (ii) $\frac{1015}{792}$ 10. (i) $\frac{1}{7}$ (ii) $\frac{-1}{22}$ (iii) $\frac{9}{6}$ (iv) $\frac{19}{7}$ (v) $\frac{-9}{5}$ (vi) Does not exist (vii) $\frac{9}{4}$ (viii) -3 11. Verified 12. (i) (b) (ii) (a) (iii) (c) 13. (i) $\frac{5}{126}$ (ii) $\frac{49}{90}$ (iii) $\frac{8}{11}$ 14. (i) False (ii) False (iii) True 15. (i) 1

(ii) $\frac{-16}{9}$ (iii) $\frac{-15}{25}$ (iv) $\frac{-3}{5}$ 16. (i) $\frac{-60}{17}$ (ii) $\frac{5}{9}$ **Exercise 1 (D)** 1. (i) $\frac{19}{30}$ (ii) $\frac{37}{90}$ (iii) $\frac{2}{5}$ 2. $-2, -1$ 3. $\frac{-19}{45}, \frac{-20}{45}, \frac{-21}{45}$ 4. $\frac{-9}{15}, \frac{-8}{15}, \frac{-7}{15}, \frac{-6}{15}, \frac{-5}{15}, \frac{-4}{15}, \frac{-3}{15}$ 5. $\frac{211}{630}, \frac{212}{630}, \frac{213}{630}, \frac{214}{630}, \frac{215}{630}, \frac{216}{630}, \frac{217}{630}, \dots$ $< \frac{270}{630}$ 6. $\frac{-31}{70}, \frac{-32}{70}, \frac{-33}{70}, \frac{-34}{70}, \dots > \frac{-130}{70}$ 7. (a) True (b) False (c) True

CH. 2 EXPONENTS Exercise 2 (A) 1. (i) $\left(\frac{2}{3}\right)^5$ (ii) $\left(\frac{-3}{8}\right)^6$ (iii) $\left(\frac{-5}{7}\right)^4$ (iv) $\left(\frac{-11}{8}\right)^9$ 2. (i) $\frac{25}{81}$ (ii) $\frac{64}{343}$ (iii) $\frac{-128}{2187}$ (iv) $\frac{1}{256}$ 3. (i) $\frac{-125}{16}$ (ii) $\frac{-64}{27}$ (iii) $\left(\frac{-9}{5}\right)^{17}$ (iv) $\left(\frac{-7}{3}\right)^2$ (v) $\left(\frac{-4}{11}\right)^3$ (vi) $\left(\frac{-4}{7}\right)^{208}$ (vii) $(-10)^{47}$ (viii) $\left(\frac{-17}{3}\right)^{89}$ 4. (i) $\left(\frac{3}{4}\right)^3$ (ii) $\left(\frac{7}{8}\right)^2$ (iii) $\left(\frac{2}{3}\right)^4$ (iv) $\left(\frac{3}{2}\right)^5$ 5. (i) $\frac{1}{12}$ (ii) $\frac{-1}{12}$ (iii) $\frac{-1}{3125}$ (iv) -80 (v) $\frac{-1}{72}$ (vi) $\frac{4}{3125}$ 6. (i) $\left(\frac{3}{8}\right)^2$ (ii) $\left(\frac{7}{5}\right)^2$ (iii) $\left(\frac{-2}{3}\right)^3$ (iv) $\left(\frac{-1}{6}\right)^3$ (v) $\left(\frac{-2}{3}\right)^5$ (vi) $\left(\frac{3}{5}\right)^4$ 7. $\frac{3911}{1080}$ 8. (b) 9. $\left(\frac{-5}{6}\right)^4$ **Exercise 2 (B)** 1. (i) $\left(\frac{1}{4}\right)^2$ (ii) $(3)^4$ (iii) $\left(\frac{-5}{3}\right)^3$ (iv) $\left(\frac{4}{3}\right)^4$ 2. (i) $\left(\frac{-25}{24}\right)^4$ (ii) $\left(\frac{3}{5}\right)^3$ 3. (i) $\frac{25}{9}$ (ii) $\left(\frac{-4}{3}\right)^{24}$ (iii) $\left(\frac{3}{2}\right)^{10}$ (iv) $\left(\frac{-7}{5}\right)^7$ 4. (i) $\frac{-5}{2}$ (ii) $\left(\frac{-9}{4}\right)^6$ 5. (i) $\frac{-64}{15}$ (ii) 30 (iii) $\frac{2}{3}$ 6. (i) $x = 4$ (ii) $x = 25$ (iii) $x = 2$ 7. $\frac{-8}{9}$ 8. $\frac{-5}{7}$ 9. $x = 1$ 10. $\frac{a}{b} = \frac{6}{11}$ 11. $\frac{625}{2}$ 12. (c) 13. (c) 14. (a)

15. (d) 16. (b) **Exercise 2 (C)** 1. (a) 2.43×10^{-5} (b) 6.25×10^{-6} (c) 7.53×10^{-10} 2. (a) 9.368×10^3 (b) 1.7×10^5 (c) 8.635×10^5 3. (i) $9 \times 10^{-18} > 25 \times 10^{-20}$ (ii) $3.8 \times 10^{-7} < 4.79 \times 10^{-6}$ 4. (c) 5. (a) 6. (a) $5.37 \times 10^{-5} < 0.00006 < 3.56 \times 10^{-4} < 0.000543$ (b) $5.37 \times 10^{-5} < 0.00006 < 3.56 \times 10^{-4} < 0.000543$ (c) $5.37 \times 10^{-5} < 0.00006 < 3.56 \times 10^{-4} < 0.000543$ (d) $5.37 \times 10^{-5} < 0.00006 < 3.56 \times 10^{-4} < 0.000543$

CH. 3 SQUARES AND SQUARE ROOTS Exercise 3 (A) 1. (i) 10 (ii) 11 (iii) 40 (iv) 90 **2.** (ii) 768 (ii) **3.** (i) It is a perfect square. (ii) 1024 is a perfect square. (iii) divided by 3. (iv) divided by 4. **4.** (i) It is a perfect square. (ii) multiplied by 7. (iii) multiple by 3. (iv) multiplied by 2. **5.** (i) (c) **6.** (d) **Exercise 3 (B) 1.** (i) T (ii) F (iii) T (iv) F (v) F **2.** (i) odd (ii) 2, 3, 7, 8 (iii) n^2 (iv) 10 (v) 1 **3.** (i) Grouping the factors 7 is left. (ii) Grouping the factors 10 is left. (iii) Grouping the factors 13 is left. (iv) Grouping the factors 11 is left. (v) Grouping the factors 5 is left. **4.** (i) 43 (ii) 79 (iii) 193 **5.** (i) 1 (ii) 9 (iii) 9 (iv) 6 (v) 0 (vi) 6 (vii) 4 (viii) 5 **6.** (i) (14, 48, 50) (iii) 10, 24, 26 **7.** (i) c (ii) e (iii) b (iv) d (v) a **8.** (b) **9.** (c) **Exercise 3 (C) 1.** (i) 14 (ii) 17 (iii) 44 (iv) 50 (v) 46 (vi) 70 (vii) 78 (viii) 54 (ix) 93 (x) 63 **2.** (i) $\frac{8}{9}$ (ii) $\frac{13}{25}$ (iii) $\frac{100}{98}$ (iv) $\frac{37}{43}$ **3.** (i) 8 (ii) 10 (iii) 72 (iv) $\frac{64}{90}$ (v) 1 **4.** (d) **5.** (a) **6.** (a) **7.** (b) **8.** (a) **9.** (b) **Exercise 3 (D) 1.** (i) $\frac{34}{45}$ (ii) $\frac{21}{25}$ (iii) $\frac{38}{91}$ **2.** (i) 48 (ii) 35 (iii) 47 (iv) 59 (v) 65 (vi) 82 (vii) 89 (viii) 93 (ix) 99 (x) 123 **3.** (i) 25.6 (ii) 36.4 (iii) 42.8 (iv) 59.7 (v) 67.5 (vi) 78.1 (vii) 88.9 (viii) 96.3 **4.** 120, 13.2 **5.** 39, 47, $\frac{43}{4}$ **6.** (b) **7.** (d) **8.** 44.6 **Exercise 3 (E) 1.** 60 **2.** 83 **3.** 94 **4.** 100 temples **5.** 9 **6.** 91 **7.** 8 should be subtracted, 6241, 79 **8.** 31 **9.** 100489 **10.** (a) **11.** (b) **Exercise 3 (F) 1.** (i) 0.63 (ii) 1.11 (iii) 3.58 (iv) 1.46 (v) 26.41 **2.** (i) 2.64 (ii) 3.16 (iii) 4.35 (iv) 5.19 (v) 8.66 (vi) 21.90 (vii) 28.80 (viii) 79.05 **3.** (i) 1.04 (ii) 2.79 (iii) 3.64 (iv) 8.65 (v) 13.22 (vi) 20.58 (vii) 76.76 (viii) 84.47 **4.** (d) **5.** (d)

CH. 4 CUBES AND CUBE ROOTS Exercise 4 (A) 1. (i) 512 (ii) 4913 (iii) 15625 (iv) 29791 (v) 216000 **2.** (i) 3 (ii) 8 (iii) 5 (iv) 4 (v) 9 **3.** (i) 512 (ii) 5832 (iv) 64000 **4.** (i) 125 (ii) 6859 (iii) 343 (iv) 12167 **5.** (i) 4 (ii) 9 (iii) 12 (iv) No (v) 21 (vi) No **6.** (i) 0.125 (ii) 0.000343 (iii) 79.507 (iv) 2744 (v) $\frac{125}{343}$ **7.** (i) 2 (ii) 3 **8.** 9 **9.** 96 **10.** (i) 18487 (ii) 2611 **Exercise 4 (B) 1.** (i) 4 (ii) 10 (iii) 13 (iv) 15 (v) 14 **2.** (i) 30 (ii) 53 **3.** (i) 14 (ii) $\frac{-9}{6}$ (iii) $\frac{-20}{21}$ **4.** (i) 4 (ii) 6 **5.** $\frac{37}{8}$ **6.** 83, 9 **7.** 12 must be added, 8 **8.** 1.9 m

CH. 5 FACTORISATION OF ALGEBRAIC EXPRESSION Exercise 5 (A) 1. $5(x-3)$ **2.** $a(a+7)$ **3.** $3(x+2y)$ **4.** $11(x+3)$ **5.** $16(5+f)$ **6.** $a(12-b)$ **7.** $9x(x-3)$ **8.** $a(5a-3)$ **9.** $x(5-7x)$ **10.** $a^2b(b-1)$ **11.** $9(2c+3d^2)$ **12.** $7f(4+7g)$ **13.** $2xy(5-6x)$ **14.** $x(x^2-x-7)$ **15.** $5x^2y^2(4y-5xy^2+8)$ **16.** $12y^2z(3y+4z)$ **17.** $2a(3+4a-2a^2)$ **18.** $7a5b^2c^2(3ab^2-5abc^2-7a^2c4)$ **Exercise 5 (B) 1.** $(p-1)(p+3)$ **2.** $(2+x)(8+x)$ **3.** $(a+3)(3a-4)$ **4.** $2(x+5)(x-3)$ **5.** $(x+2y)[5-7(x+2y)]$ **6.** $(n-2)(n-5)$ **7.** $7(3x+5y)^2[2(3x-5y)+1]$ **8.** $(x-7)(x-9)$ **9.** $(b+3)(b+5)$ **10.** $(y+7)(y+1)$ **11.** $(7-x)(x-1)$ **12.** $3(x-1)(3x-1)$ **13.** $(z-1)(5-6z)$ **14.** $(a+b)(a+4)$ **15.** $(a-10)(a-11)$ **16.** $(a-2b)(a+c-1)$ **Exercise 5 (C) 1.** $(m+n)(x^2+y^2)$ **2.** $(p+2)(p+q)$ **3.** $(5a+8c)(b+d)$ **4.** $(y^2+12)(y+6)$ **5.** $(m+n)(x+y)$ **6.** $(8p-7r)(q-s)$ **7.** $(p-1)(pq+r^2)$ **8.** $(p-b)(p-a)$ **9.** $(b+y)(2a+3x)$ **10.** $(3y+z)$ **11.** $(8c+5d)(2a+b)$ **12.** $(z+w)(3x+2y)$ **13.** $(7m+5n)(2a+3b)$ **14.** $(x+2a)(ay^2+3)$ **15.** $(4x+6)(ay^2+5)$ **16.** (a) **17.** (b) **Exercise 5 (D) A 1.** $(2x+1)^2$ **2.** $(a-1)(a-4)$ **3.** $(a-9)^2$ **4.** $(y+8)(y+2)$ **5.** $(a-b)^2$ **6.** $(5x^2-6y^2)^2$ **7.** $(5x-6t)^2$ **8.** $(x+4)^2$ **9.** $(6p+8q)^2$ **10.** $(5m+x)^2$ **11.** $(9a-4b)^2$ **12.** $16x$ **13.** $12a$ **14.** $8p$ **15.** 4 **16.** $16c^2$ **17.** x^2 **18.** $(m+5)^2$ **19.** $(x+3)^2$ **20.** $(a-1)^2$ **21.** $(7-n)^2$ **22.** $(y+12)^2$ **23.** $(4x-5y)^2$ **24.** $(1-5ax)(1-3ax)$ **25.** $(4d-1)^2$ **26.** $\left(a+\frac{-5}{3}\right)^2$ **27.** $\left(\frac{x}{2y}-\frac{y}{5x}\right)^2$ **28.** $\left(a+\frac{1}{2}\right)^2$ **29.** $(13a^3-3b^3)^2$ **30.** $(x-6)$ **31.** $\left(\frac{m}{n}+\frac{n}{m}\right)^2$ **32.** $(13+p)$ **33.** $(5-10a)$ **34.** $3y+5$ **35.** (a) **Exercise 5 (E) 1.** $(x-5)(x+5)$ **2.** $(4-a)(4+a)$ **3.** $(8n-5)(8n+5)$ **4.** $(8c-7d)(8c+7d)$ **5.** $(7a-1)(7a+1)$ **6.** $(b^2-a)(b^2+a)$ **7.** $(3b-2)(3b+2)$ **8.** $(10-y)(10+y)$ **9.** $(x-y)(x+y)$ **10.** $(ab-8)(ab+8)$ **11.** $(mn-3)(mn+3)$ **12.** $(1-y)(1+y)$ **13.** $(b^2-11)(b^2+11)$ **14.** $\left(a-\frac{1}{3}\right)\left(a+\frac{1}{3}\right)$ **15.** $(13-b^2)(13+b^2)$ **16.** $(ax-y)(ax+y)$ **17.** $(xy-a)(xy+a)$

18. $(a^2 + 9)(a - 3)(a + 3)$ 19. $3xy(x + 9y)(x + 9y)$ 20. $(6 - ax)(6 + ax)$ 21. $2(3ax - 4)(3ax + 4)$
 22. $\left(\frac{x}{4} - \frac{y}{5}\right)\left(\frac{x}{4} + \frac{y}{5}\right)$ 23. $\left(\frac{8}{p} - \frac{7}{q}\right)\left(\frac{8}{p} + \frac{7}{q}\right)$ 24. $(x - 0.2)(x + 0.2)$ 25. $(17 - m)(3 + m)$ 26. $(x + 1 - y)(x + 1 + y)$ 27. $(n - 0.8)(n + 0.8)$ 28. $\left(\frac{2}{3}m - 6\right)\left(\frac{2}{3}m + 6\right)$ 29. $\left(\frac{1}{2}b - 9\right)\left(\frac{1}{2}b + 9\right)$ 30. $(x - 2y - z)(x - 2y + z)$ 31. $(x^2 - 5y^2)(x^2 + 5y^2)$ 32. $b^2(b - 1)(b + 1)$ 33. (d) 34. (c) **Exercise 5 (F)** 1. $(x + 2)(x + 5)$ 2. $(m + 7)(m + 6)$ 3. $(p + 2)(p + 3)$ 4. $(b + 16)(b - 2)$ 5. $(x + 9)(x + 6)$ 6. $(n - 8)(n - 3)$ 7. $(x + 1)(x - 5)$ 8. $(x - 5)(x + 10)$ 9. $(x - 6)(x + 4)$ 10. $(a - 7)(a + 9)$ 11. $(2 + x)(24 - x)$ 12. $(c - 8)(c - 5)$ 13. $(k - 8)(k + 5)$ 14. $(n + 22)(n + 5)$ 15. $2x(x + 7)(x - 2)$ 16. $(p - 16)(p + 11)$ 17. $(z + 21)(z - 5)$ 18. $(n - 23)(n + 4)$ 19. $c^3(b + 6c)(b + 2c)$ 20. $3x^3(x - 8)(x + 2)$ 21. $(p - 2)(7 - 4)$ 22. $(m^2 + 19)(m^2 - 3)$ 23. $(y^2 + 8)(y + 2)(y - 2)$ 24. (c) 25. (a) **Exercise 5 (G)** 1. $(x + 6)(2x + 1)$ 2. $(x + 2)(5x + 3)$ 3. $(y + 1)4y + 1$ 4. $(a + 4)(2a + 3)$ 5. $(2x - 1)(2x + 5)$ 6. $(x - 8)(3x + 1)$ 7. $(x - 3)(3x + 2)$ 8. $(1 - 3p)(2 + 3p)$ 9. $(2k - 3)(2k - 3)$ 10. $(8n - 3)(5n + 2)$ 11. $(n + 4m)(n - 2m)$ 12. Wrong questions 13. $(1 - 3x)(1 + 2x)$ 14. $2x(x^2 + 4)(3x^2 - 1)$ 15. $6x(2x - 1)(x + 1)$ 16. $y^2(2y^2 + 1)(y - 2)(y + 2)$ 17. (b) 18. (d)

CH. 6 LINEAR EQUATION Exercise 6 (A) 1. (i) $a = 6$ (ii) $x = 14$ (iii) $x = \frac{3}{2}$ 2. (i) $t = 1$ (ii) $x = 91$ 3. (i) $y = 12$ (ii) $x = 14$ 4. $a = \frac{6}{5}$ 5. $P = \frac{1690}{59}$ 6. $\frac{108}{7}$ 7. $u = 20$ 8. $x = \frac{125}{41}$ 9. $z = -8$ 10. $a = \frac{12}{7}$ 11. $x = 9$ 12. $x = \frac{-9}{5}$ 13. $x = \frac{-9}{2}$ 14. $a = \frac{390}{29}$ 15. $z = 5$ 16. $p = \frac{4}{3}$ 17. $y = 1$ 18. $m = \frac{-133}{29}$ 19. $a = \frac{172}{381}$ 20. $x = \frac{6}{11}$ 21. $a = \frac{-6}{7}$ 22. (c) 23. wrong question **Exercise 6 (B)** 1. $x = 125$ 2. 52, 10 3. 28 4. 216 5. 2901289 6. 12 7. 270 8. 46, 35 9. $24\sqrt{10}$ 10. 22 years 11. 40 years 12. 17 years 13. 20 years 14. 30 years 15. (20) 31.5% 16. 52.6 kg 17. 245 m 18. 52 m/sec 19. 80 sec 20. 4 h/km 21. (b) 22. (a) 23. (b)

CH. 7 PERCENTAGE AND ITS APPLICATIONS Exercise 7 (A) 1. (i) 0.665, $\frac{133}{200}$ (ii) 0.8, $\frac{4}{5}$ (iii) 1.75, $\frac{7}{4}$ (iv) 0.125, $\frac{1}{8}$ 2. (i) 80% (ii) 41 $\frac{2}{3}$ % (iii) 1% (iv) 12.5% 3. (i) 5 : 4 (ii) 1 : 3 (iii) 7 : 10 (iv) 1 : 6 4. (i) 25 (ii) 50% (iii) 52% (iv) 70% 5. (i) 80kg (ii) 44.1 m (iii) 24 g (iv) ₹ 345 6. (i) 6.25 gm (ii) 16 lt (iii) 756 cm (iv) 200 7. (i) Quality = 500 (ii) 400 8. 360 9. 49200 10. 75% 11. 224 12. (d) 13. (d) 14. (c) **Exercise 7 (B)** 1. 650 boys 2. 6000 3. 57% 4. 52.5% 5. 75% 6. Hydrogen - 400 ml Oxygen - 500 ml, other gases - 100 ml 7. 51840 8. 44% 9. 6.25% increase 10. 800% 11. (d) 12. (c) **Exercise 7 (C)** 1. ₹ 1800 2. Profit - 3% 3. $4\frac{1}{6}$ % 4. Profit $16\frac{2}{3}$ % 5. Loss 16.6 6. 2 toffees in a rupee. 7. ₹ 17.4 per kg 8. Gain $4\frac{1}{6}$ % 9. ₹ 800 10. Gain 20% 11. C.P. = ₹ 400 12. 15% 13. Gain 8.3% 14. Profit = 5.6% 15. ₹ 500 16. 5% 17. (a) 18. (a) **Exercise 7 (D)** 1. Discount = 540, Amount = ₹ 2460 2. Marked price = ₹ 3000 3. Discount = 12.5% 4. List price = ₹ 1000 5. M.P. = ₹ 36960 6. (i) M.P. = ₹ 4200 (ii) C.P. = ₹ 2800 7. M.P. ₹ 1120 8. Pradeep = ₹ 2400 Vaibhav = ₹ 2520 9. Net S.P. = 131.10 10. C.P. = ₹ 2000 11. M.P. = ₹ 2250 12. ₹ 937.5 13. (a) 14. (d) **Exercise 7 (E)** 1. List price = ₹ 8400 2. List price = ₹ 20000 3. ₹ 15,000 4. Original price = ₹ 44500 5. ₹ 2500 6. 7% 7. ₹ 1308 8. ₹ 13,200 9. (b) 10. (a)

CH. 8 COMPOUND INTEREST Exercise 8 (A) 1. (i) 2812.5 2. ₹ 4200 3. ₹ 3520 4. Amount = ₹ 17,576 2. ₹ 4200 3. ₹ 3520 4. Amount ₹ 17,576 C.I. = ₹ 1951 5. Amount = ₹ 9261, C.I. = ₹ 1261 6. (i) ₹ 24200 (ii) 22000 (iii) ₹ 200 (iv) ₹ 4200 7. (i) ₹ 6750 (ii) ₹ 11437.5 (iii) ₹ 15000 (iv) ₹ 18750 8. (b) 9. (b) **Exercise 8 (B)** 1. ₹ 8820 2. C.I. = ₹ 10123.2 3. ₹ 231.52 4. ₹ 16537.5 5. 51.25 6. ₹ 64.1 7. ₹ 3 8. ₹ 4096 9. 182.79 10. (b) 11. (b) **Exercise 8 (C)** 1. ₹ 40,500 2. 7.056×10^{14} 3. 1365×10^9 4. 1,66,375 residents 5. 72900 cars 6. 270 cows 7. ₹ 607.5 8. 10,000 9. ₹ 11,520 10. (d) 11. 6.24 lakh **Exercise 8 (D)** 1. ₹ 625 2. ₹ 8000 3. 20000 4. ₹ 4096 5. ₹ 8920 6. ₹ 1130.0625 7. $R = P.a.$ 8. (b) 9. (c)

CH. 9 VARIATION AND DIRECT AND INVERSE PROPORTION Exercise 9 (A) 1. (i) $x = -6y$ vary directly 2. not vary 3. not vary 4. not vary 5. vary directly 6. not vary 7. not vary directly 8. not vary directly 9. not vary directly 10. not vary directly 11.

Time (in school)	2	5	15	30	90
Height of the balloon (in metres)	20	50	150	300	900

12. (a) (b) (c) (d) vary directly. 13. 14 cm 14. 20 cm 15. 500 metres 16. ₹ 42.8 17. (d) 18. (a) **Exercise 9 (B)** 1. (i) Directly vary (ii) Inverse variation (iii) Inverse variation (iv) Directly vary (v) Inverse variation

2. (i) $f = \frac{1}{L}$ (ii) $h = \frac{1}{A}$ (iii) $V = \frac{1}{P}$ (iv) $l = \frac{1}{R}$ 3.

P	20	4	5	10	15	1000	0.5
q	10	50	40	20	$\frac{40}{3}$	0.2	400

4. (a) Vary Directly

x	32	24	20	16	8
y	8	6	5	4	2

(b) Inverse Variation

x	1	5	10	25	125
y	125	25	12.5	5	1

5. $u = \frac{5}{2}$ 6. (i) $u = 6$ (ii) $y = 3$ (iii) $x = 2$ (iv) $b = 9$ 7. (c) 8. (a) 9. (d)

Exercise 9 (C) 1. $x = 2.5$ 2. ₹ 204 3. 12 4. Smaller number 33 5. 1500 6. 60 7. 484 8. 4 : 7 : 12 9. 24 10. (d) 11. (c) **Exercise 9 (D)**

1. 49 cup boards 2. 52 weeks 3. 15 days 4. 10 days 5. 12 hours 6. 9 days 7. (b) 8. (b)

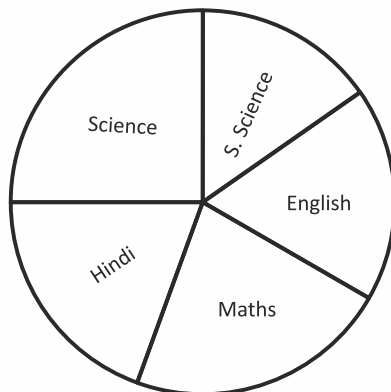
CH. 10 QUADRILATERALS Exercise 10 (A) 1. (i) 360° (ii) less (iii) four, four, four, two 2. (i) Quadrilateral (ii) Quadrilateral (iii) Quadrilateral (iv) Not possible Quadrilateral 3. $\angle D = 100^\circ$ 4. 90° 5. Largest angle 90° 6. (i) 1650 (ii) $80^\circ, 80^\circ, 100^\circ, 100^\circ$ 7. Each angle 90° 8. $\angle APB = 75^\circ$ 9. $\angle QPR = 135^\circ$

CH. 11 SPECIAL TYPES OF QUADRILATERAL Exercise 11 (A) 1. (i) 16 m, 24 m 2. $100^\circ, 80^\circ, 100^\circ, 80^\circ$ 3. $120^\circ, 60^\circ, 120^\circ, 60^\circ$ 4. $x = 20; y = 50^\circ$ 5. $\angle a = 115^\circ, \angle b = \frac{65}{2}, \angle c = \frac{65}{2}, \angle d = 50^\circ$ 6. $\angle a = 80^\circ, \angle b = 60^\circ$ 7. $106^\circ, 74^\circ, 106^\circ, 74^\circ$ 8. $x = 40^\circ, y = 57.5$ 9. $\angle A = 105^\circ, \angle B = 75^\circ, \angle C = 105^\circ, \angle D = 75^\circ$ 10. Breadth = 77.5 cm Length = 102.5 cm 11. $50^\circ, 130^\circ, 50^\circ, 130^\circ$ **Exercise 11 (B)** 1. 15 cm 2. 20 cm, 25 cm 3. $\angle OAB = 40^\circ, \angle OBA = 40^\circ, \angle AOB = 100^\circ$ 4. 18 cm 5. 12 cm 6. $x = 5$ cm 7. (i) $\angle PQO = 40^\circ$ (ii) $\angle ORS = 40^\circ$ 8. $\angle PCD = 45^\circ$ 9. $\angle DOC = 90^\circ, \angle ODC = 36^\circ, \angle OCD = 54^\circ, 10. 60^\circ, 120^\circ, 60^\circ, 120^\circ$

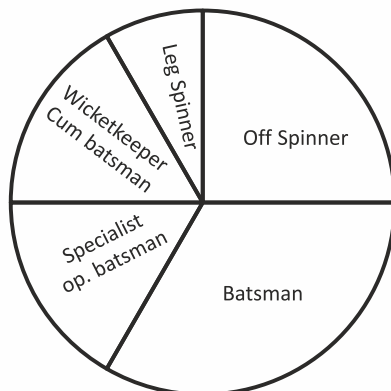
CH. 12 BAR GRAPH AND HISTOGRAMS Chapter 12 (A) 1. Do it yourself. 2. (i) Mathematics club 30 members (ii) 120 members (iii) 12.5% (iv) Bar graph gives the idea the number of students in different club of the school (v) ₹ 250 (vi) Music club (vii) 240 members 3. (i) The trend of per capita whole milk consumption is average (ii) The trend of per capita low fat milk consumption is minimum (iii) 2011 (iv) Year 2007 (v) Year 2007 4. (i) 60 times (ii) 160 students (iii) English (iv) Economics and Computer (v) English - 28 students (vi) Economics and Computer 5. (i) Pass percentage of class XII and Class X in five years (ii) 2010 and 2011 (iii) 2008 (iv) 2007 (v) Class X - 83.8% Class XII - 87.2% Class XII has the higher average pass percentage. **Exercise 12 (B)** 1. Draw histogram students by themselves. 2. Draw histogram students by themselves. 3. (i) Draw histogram students by themselves. (ii) 29 students (iii) 25 students (iv) 15 students (v) 23 students 4. Draw frequency distribution and histogram by students 5. (i) 30 matches (ii) 2 matches (iii) 7 matches (iv) 18 matches 6. (i) 29.5 - 34.5 years (ii) 14.5 - 19.5 years (iii) 400 number of females (iv) 3000 females (v) 1000 : 200 or 5 : 1 (vi) 20%

CH. 13 PIE CHARTS OR CIRCLE GRAPHS Exercise 13 (A)

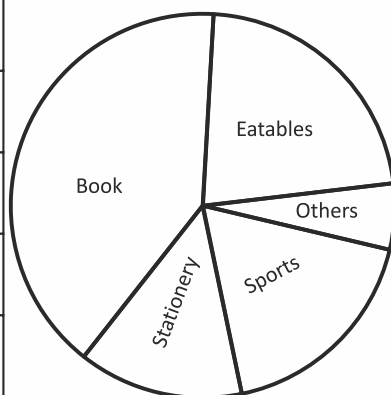
1.	Subject	Marks Ob.	
1.	Hindi	105	$\frac{105}{540} \times 360^\circ = 70^\circ$
2.	S. Sci	82.5	$\frac{82.5}{540} \times 360^\circ = 55^\circ$
3.	Science	135	$\frac{135}{540} \times 360^\circ = 90^\circ$
4.	English	97.5	$\frac{97.5}{540} \times 360^\circ = 65^\circ$
5.	Maths	120	$\frac{120}{540} \times 360^\circ = 80^\circ$
	Total	540	



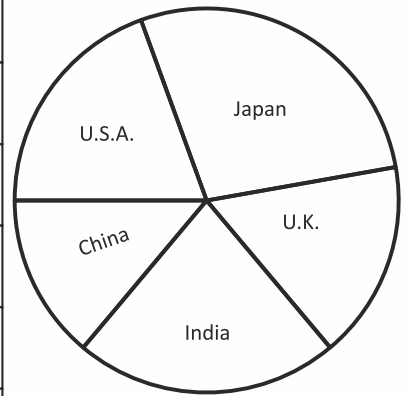
2.	Players	Numbers	
1.	Wicketkeeper Cum batsman	2	$\frac{2}{12} \times 360^\circ = 60^\circ$
2.	Off Spinner	3	$\frac{3}{12} \times 360^\circ = 90^\circ$
3.		1	$\frac{1}{12} \times 360^\circ = 30^\circ$
4.	Specialist op. batsman	2	$\frac{2}{12} \times 360^\circ = 60^\circ$
5.	Batsman	4	$\frac{4}{12} \times 360^\circ = 120^\circ$
	Total	12	



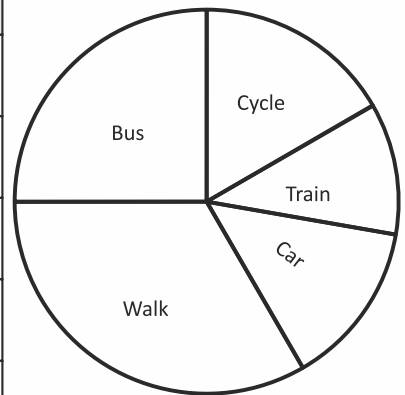
3.	Team	Money Spent	
1.	Book	29	$\frac{29}{72} \times 360^\circ = 145^\circ$
2.	Eatables	16	$\frac{16}{72} \times 360^\circ = 80^\circ$
3.	Stationery	10	$\frac{10}{72} \times 360^\circ = 50^\circ$
4.	Sports	13	$\frac{13}{72} \times 360^\circ = 65^\circ$
5.	Others	4	$\frac{4}{72} \times 360^\circ = 20^\circ$
	Total	72	



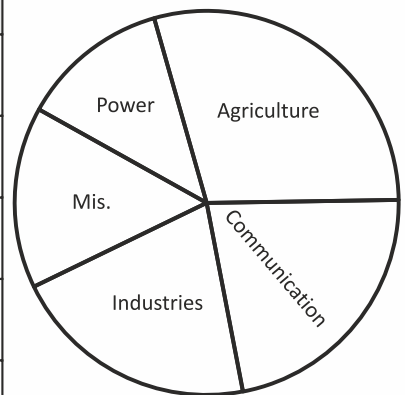
4.	Country	No. of Stamps	
1.	U.S.A.	105	$\frac{105}{540} \times 360^\circ = 70^\circ$
2.	Japan	150	$\frac{150}{540} \times 360^\circ = 100^\circ$
3.	U.K.	90	$\frac{90}{540} \times 360^\circ = 60^\circ$
4.	India	120	$\frac{120}{540} \times 360^\circ = 80^\circ$
5.	China	75	$\frac{75}{540} \times 360^\circ = 50^\circ$
	Total	540	



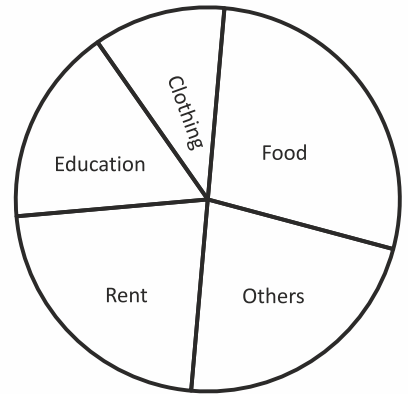
5.	Transport of the office	No. of office goers	
1.	Car	10	$\frac{10}{72} \times 360^\circ = 50^\circ$
2.	Cycle	12	$\frac{12}{72} \times 360^\circ = 60^\circ$
3.	Bus	18	$\frac{18}{72} \times 360^\circ = 90^\circ$
4.	Walk	24	$\frac{24}{72} \times 360^\circ = 120^\circ$
5.	Train	8	$\frac{8}{72} \times 360^\circ = 40^\circ$
	Total	72	



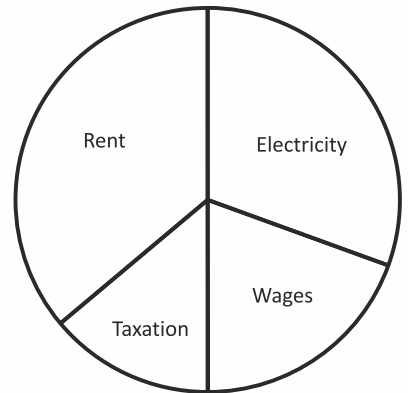
6.	Item	Rupees (in crores)	
1.	Agriculture	5250	$\frac{5250}{18000} \times 360^\circ = 150^\circ$
2.	Communication	4000	$\frac{4000}{18000} \times 360^\circ = 80^\circ$
3.	Industries	3750	$\frac{3750}{18000} \times 360^\circ = 75^\circ$
4.	Power	2250	$\frac{2250}{18000} \times 360^\circ = 45^\circ$
5.	Mis.	2750	$\frac{2750}{18000} \times 360^\circ = 55^\circ$
	Total	18000	



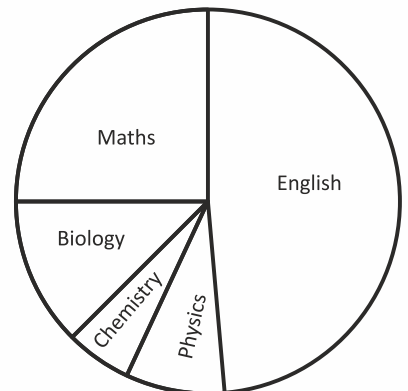
7.	Item	Expenditure (in ₹)	
1.	Clothing	1600	$\frac{1600}{14400} \times 360^\circ = 40^\circ$
2.	Rent	3200	$\frac{3200}{14400} \times 360^\circ = 80^\circ$
3.	Food	4000	$\frac{4000}{14400} \times 360^\circ = 100^\circ$
4.	Education	2400	$\frac{2400}{14400} \times 360^\circ = 60^\circ$
5.	Others	3200	$\frac{3200}{14400} \times 360^\circ = 80^\circ$
	Total	14400	



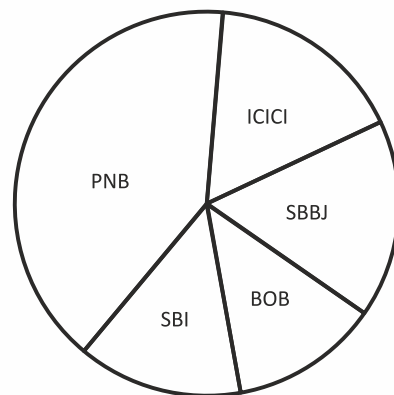
7.	Item	Amount (₹)	
1.	Rent	1560	$\frac{1560}{4320} \times 360^\circ = 130^\circ$
2.	Wages	840	$\frac{840}{4320} \times 360^\circ = 70^\circ$
3.	Taxation	600	$\frac{600}{4320} \times 360^\circ = 50^\circ$
4.	Electricity	1320	$\frac{1320}{4320} \times 360^\circ = 110^\circ$
	Total	4320	



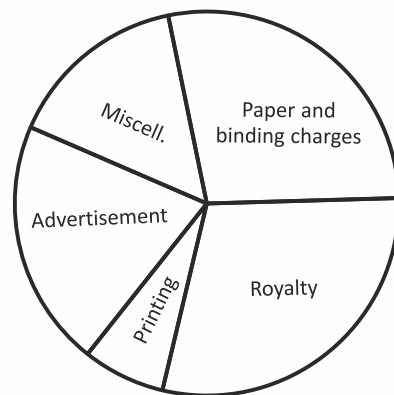
7.	Subject	No. of students	
1.	Biology	9000	$\frac{9000}{72000} \times 360^\circ = 45^\circ$
2.	English	35000	$\frac{35000}{72000} \times 360^\circ = 175^\circ$
3.	Maths	18000	$\frac{18000}{72000} \times 360^\circ = 90^\circ$
4.	Chemistry	4000	$\frac{4000}{72000} \times 360^\circ = 20^\circ$
5.	Physics	6000	$\frac{6000}{72000} \times 360^\circ = 30^\circ$
	Total	72,000	



10.	Bank	No. of credit cards issued	
1.	ICICI	24000	$\frac{24000}{144000} \times 360^\circ = 60^\circ$
2.	SBBJ	24000	$\frac{24000}{144000} \times 360^\circ = 60^\circ$
3.	BOB	18000	$\frac{18000}{144000} \times 360^\circ = 45^\circ$
4.	PNB	58000	$\frac{58000}{144000} \times 360^\circ = 145^\circ$
5.	SBI	20000	$\frac{20000}{144000} \times 360^\circ = 50^\circ$
	Total	144000	



11.	Head	Percentage %	
1.	Royalty	$\frac{175}{6}$	$\frac{175}{6} \times \frac{1}{100} \times 360^\circ = 105^\circ$
2.	Printing	$\frac{125}{8}$	$\frac{125}{8} \times \frac{1}{100} \times 360^\circ = 25^\circ$
3.	Paper and binding charges	$\frac{250}{9}$	$\frac{250}{9} \times \frac{1}{100} \times 360^\circ = 100^\circ$
4.	Miscell.	$\frac{275}{18}$	$\frac{275}{18} \times \frac{1}{100} \times 360^\circ = 55^\circ$
5.	Advertisement	$\frac{125}{6}$	$\frac{125}{6} \times \frac{1}{100} \times 360^\circ = 75^\circ$
	Total	100	



12. Kota – 6 lakh, Jaipur – 12 lakh, Delhi – 8.5 lakh, Pune – 9.5 lakh 13. Wages – 4.375 lakh, Rent – 2 lakh, Maintenance – 0.72 lakh, Electricity and Water – 0.625 lakh, Miscellaneous – 1.25 lakh

CH. 14 PROBABILITY Exercise 14 (A) 1. (i) $\frac{1}{2}$ (ii) $\frac{1}{6}$ (iii) $\frac{1}{3}$ (iv) $\frac{1}{2}$ 2. (i) Possible outcomes {1, 2, 3, 4, 5, 6} (ii) Possible outcomes {HH, HT, TH, TT} (iii) Possible outcomes {H, T} 3. (i) $\frac{1}{3}$ (ii) $\frac{1}{3}$ (iii) $\frac{1}{2}$ 4. $\frac{1}{7}$ 5. (i) $\frac{1}{12}$ (ii) $\frac{11}{12}$ 6. (i) $\frac{2}{5}$ (ii) $\frac{1}{2}$ (iii) $\frac{3}{10}$ (iv) $\frac{1}{10}$ 7. (i) $\frac{2}{3}$ (ii) $\frac{1}{3}$ 8. (i) $\frac{5}{26}$ (ii) $\frac{1}{3}$ 9. (i) $\frac{13}{52} = \frac{1}{4}$ (ii) $\frac{1}{13}$ (iii) $\frac{1}{13}$ 10. (i) $\frac{1}{4}$ (ii) $\frac{1}{4}$ (iii) $\frac{3}{4}$ 11. (i) $\frac{1}{10}$ (ii) $\frac{2}{5}$ (iii) $\frac{9}{10}$ 12. (i) $\frac{1}{3}$ (ii) $\frac{4}{15}$ (iii) $\frac{3}{5}$ (iv) $\frac{2}{3}$ 13. $\frac{17}{25}$ 14. (i) $\frac{1}{13}$ (ii) $\frac{1}{2}$ (iii) $\frac{3}{13}$ 15. $\frac{4}{9}$

CH. 15 VISUALISING SOLID SHAPES Exercise 15 (A) 1. (i) (a) Side view (b) Front views (c) Top views (ii) (a) Side views (b) Front views (c) Top views (iii) (a) Top views (b) Front views (c) Side views (iv) (a) Front views (b) Side views (c) Top views (v) (a) Top views (b) Front views (c) Side views (vi) (a) Side views (b) Top views (c) Front views (vii) (a) Front views (b) Side views (c) Top views (viii) (a) Front views (b) Top views (c) Side views **Exercise 15 (B)** Students will do it by themselves. **Exercise 15 (C)** 1. (i) Cuboid :- $F = 6$, $E = 12$, $V = 8$

6, E = 12, V = 8 (ii) Triangular prism :- F = 5, E = 9, V = 6 (iii) Pentagonal prism :- F = 7, E = 9, V = 6 (iv) Hexagonal prism :- F = 7, E = 12, V = 7 (v) Triangular pyramid :- F = 4, E = 6, V = 4 (vi) Hexagonal pyramid :- F = 7, E = 12, V = 7

2. (i) $V + F - E = 2$, $V = 16$ (ii) $V + F - E = 2$, $F = 12$

3. (i) Cube - 6 faces (ii) Pentagonal prism - 7 faces (iii) Octagonal prism - 10 faces (iv) Pentagonal pyramid - 6 faces (v) Hexagonal pyramid - 7 faces

4. (i) Cuboid - 12 edges (ii) Square prism - 12 edges (iii) Hexagonal prism - 12 edges (iv) Octagonal prism - 14 edges (v) Square pyramid - 8 edges

5. (i) Hexagonal prism - 7 vertices (ii) Regular octahedron - 7 vertices (iii) Square pyramid - 5 vertices (iv) Pentagonal pyramid - 6 vertices (v) Octagonal pyramid - 9 vertices

6. (i) faces = $n + 1$, Vertices = $n + 1$, Edges = $2n$ (ii) Faces = $2 + n$ Vertices = $2n$, Edges = $3n$

CH. 16 AREA OF POLYGONS Exercise 16 (A) **1.** (i) 44 m^2 (ii) 950 m^2 (iii) 10 cm^2 (iv) 72 cm^2 **2.** 29 cm **3.** 9680 m **4.** $4\sqrt{3} \text{ cm}$ **5.** 462 cm^2 **6.** $\frac{107}{28} \text{ cm}$ **7.** ₹ 352

Exercise 16 (B) **1.** 10 cm , 15 cm **2.** 66 cm **3.** 44 cm^2 **4.** 12 cm , 18 cm **5.** $h = 4 \text{ cm}$ **6.** 260 cm^2 **7.** $18\sqrt{7} \text{ cm}^2$ **8.** 196 cm^2 **9.** $36\sqrt{21} \text{ cm}^2$ **10.** ₹ 3750

Exercise 16 (C) **1.** 18 m **2.** Length of other diagonal 6 m , area of rhombus = 24 m^2 **3.** 624 m^2 **4.** 550 cm^2 **5.** 102 cm^2 **6.** 575 cm^2 **7.** 6550 m^2 ₹ 36,025 **8.** 163 cm^2 **9.** (i) 81 cm^2 (ii) 70 cm^2 (iii) 159 cm^2 (iv) 184 cm^2

CH. 17 SURFACE AREA AND VOLUME OF SOLIDS Exercise 17 (A) **1.** 10 cm **2.** 21% **3.** L.S.A. 2400 cm^2 , T.S.A. = 4000 cm^2 **4.** 64 cm^2 **5.** 600 cm^2 **6.** 7 square sheet required **7.** ₹ 52 **8.** Height = 3 m **9.** Height = 10 cm **10.** $30\sqrt{\frac{11}{15}} \text{ m}$, $30\sqrt{\frac{11}{15}} \text{ m}$, $\sqrt{\frac{11}{15}} \text{ m}$ **11.** 224 cm^2 **12.** ₹ 1320 **13.** ₹ 1125 **14.** ₹ 3696 **15.** ₹ 6600000 **16.** ₹ 2880 **17.** C.S.A. 132 m^2 T.S.A. 440 m^2 **18.** 40 cm **19.** 2 revolution

Exercise 17 (B) **1.** 5184 cm^3 **2.** 8400 m^3 per minute **3.** 244.14 cm^3 **4.** 2000 lt **5.** Volume $\frac{3651}{5000} \text{ m}^3$, each edge $\sqrt[3]{\frac{3651}{5000}}$ **6.** Length = $10\sqrt{10} \text{ cm}$, Breadth = $2\sqrt{10} \text{ cm}$ **7.** ₹ 12480 **8.** 640 cm^3 **9.** (i) 3234 cm^3 (ii) 3516 cm^3 (iii) 35.6 kg **10.** 3 cm **11.** 6000 cm^3 , 22000 cm^3 , 12000 cm^3 **12.** ₹ 24640 **13.** 154 litre **14.** 4 cm **15.** 36 litre **16.** 1650 **17.** $\frac{1140}{49} \text{ cm}$ **18.** Square has more area by 840 cm^2 **19.** $h = \frac{700}{11} \text{ m}$

CH. 18 TIME AND WORK Exercise 18 (A) **1.** 12 days **2.** 8 days **3.** 90 days **4.** 30 days **5.** $2\frac{2}{3} \text{ hours}$ **6.** 12 days **7.** $1\frac{1}{5} \text{ hours}$ **8.** 16 days , 48 days **9.** $2\frac{2}{3} \text{ hours}$ **10.** 24 hours