

ANSWERS

Practice Set 1 1. --- 2. --- 3. In the interior of the triangle 4. On the hypotenuse of right-angled triangle 5. To draw circumcentre of the triangle.

Practice Set 2 --- **Practice Set 3** ---

Practice Set 4 --- **Practice Set 5** ---

Practice Set 6 : 1. (i) $\text{Seg MG} \cong \text{Seg GR}$

(ii) $\text{Seg MG} \cong \text{Seg NG}$

(iii) $\text{Seg GC} \cong \text{Seg GB}$

(iv) $\text{Seg GE} \cong \text{Seg GR}$

2. (i) $\text{Seg AB} \cong \text{Seg WA}$

(ii) $\text{Seg AP} \cong \text{Seg YC}$

(iii) $\text{Seg AC} \cong \text{Seg PY}$

(iv) $\text{Seg PW} \cong \text{Seg BY}$

(v) $\text{Seg YA} \cong \text{Seg YQ}$

(vi) $\text{Seg BW} \cong \text{Seg ZX}$

(There may be many correct answers for each of the above questions.)

Practice Set 7 : $\odot \angle AOB \cong \angle BOC$

$\angle AOB \cong \angle RST \quad \angle AOC \cong \angle PQR$

$\angle DOC \cong \angle LMN \quad \angle BOC \cong \angle RST$

Practice Set 8 : $\odot$ (i) 35 (ii) -54 (iii) -36

(iv) -56 (v) 124 (vi) 84 (vii) 441

(viii) -105

Practice Set 9 : 1. (i) -6 (ii) $\frac{-7}{2}$ (iii) $\frac{-3}{4}$

(iv) $\frac{-2}{3}$ (v) $\frac{-17}{4}$ (vi) 6 (vii) $\frac{5}{3}$ (viii) $\frac{-1}{6}$

(ix) $\frac{6}{5}$ (x) $\frac{1}{63}$ 2. $24 \div 5$, $72 \div 15$,

$-48 \div (-10)$ etc. 3. $-5 \div 7$, $-15 \div 21$, $20 \div (-28)$ etc.

Practice Set 10 : 1. 1 2. 4, 5 and 17, 19

3. 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97 Total prime numbers 16

4. 59 and 61, 71 and 73 5. (2,3), (5,7),

(11,12), (17,19), (29,30) etc. 6. 2

Practice Set 11 : $\odot$ (i) $2 \times 2 \times 2 \times 2 \times 2$

(ii) 3×19 (iii) 23 (iv) $2 \times 3 \times 5 \times 5$

(v) $2 \times 2 \times 2 \times 3 \times 3 \times 3$

(vi) $2 \times 2 \times 2 \times 2 \times 13$ (vii) $3 \times 3 \times 5 \times 17$

(viii) $2 \times 3 \times 3 \times 19$ (ix) 13×29 (x) 13×43

Practice Set 12 : 1. (i) 5 (ii) 8 (iii) 5

(iv) 1 (v) 2 (vi) 7 (vii) 3 (viii) 3

(ix) 1 (x) 21

2. (i) HCF 25, Simplest form $\frac{11}{21}$

(ii) HCF 19, Simplest form $\frac{4}{7}$

(iii) HCF 23, Simplest form $\frac{7}{3}$

Practice Set 13 : 1. (i) 60 (ii) 120 (iii) 288

(iv) 60 (v) 3870 (vi) 90 (vii) 1365 (viii) 180

(ix) 567 (x) 108

2. (i) 1; 1184 (ii) 1; 2346 (iii) 15; 60

(iv) 9; 126 (v) 26; 312

Practice Set 14 : 1. (i) 30 (ii) 40, 20

2. (i) 14; 28 (ii) 16; 32 (iii) 17; 510

(iv) 23; 69 (v) 7; 588

3. (i) 252 (ii) 150 (iii) 1008 (iv) 60 (v) 240

4. 365 5. (i) $\frac{12}{11}$ (ii) $\frac{17}{19}$ (iii) $\frac{23}{29}$ 6. 144

7. 255 8. 14m 9. 18 and 20

Practice Set 15 : 1. Points in the interior : R, C, N, X

Points in the exterior : T, U, Q, V, Y

Points on the arms of the angles : A, W, G, B

2. $\angle ANB$ and $\angle BNC$, $\angle BNC$ and $\angle ANC$, $\angle ANC$ and $\angle ANB$, $\angle PQR$ and $\angle PQT$

3. (i) The pairs are adjacent. (ii) and (iii) are not adjacent because the interiors are not separate. (iv) The pairs are adjacent.

Practice Set 16 : 1. (i) 50° (ii) 27° (iii) 45°

(iv) 35° (v) 70° (vi) 0° (vii) $(90-x)^\circ$

2. 20° and 70°

Practice Set 17 : 1. (i) 165° (ii) 95° (iii) 60°
(iv) 143° (v) 72° (vi) 180° (vii) $(180-a)^\circ$

2. Pairs of complementary angles : (i) $\angle B$ and $\angle N$ (ii) $\angle D$ and $\angle F$ (iii) $\angle Y$ and $\angle E$

Pairs of supplementary angles : (i) $\angle B$ and $\angle G$ (ii) $\angle N$ and $\angle J$ 3. $\angle X$ and $\angle Z$ are complementary angles. 4. 65° and 25° 5. (i) $\angle P$ and $\angle M$ (ii) $\angle T$ and $\angle N$ (iii) $\angle P$ and $\angle T$ (iv) $\angle M$ and $\angle N$ (v) $\angle P$ and $\angle N$ (vi) $\angle M$ and $\angle T$ 6. 160°

7. $m\angle A = (160-x)^\circ$

Practice Set 18 : 1. Ray PL and Ray PM;

Ray PN and Ray PT. 2. No. Because the rays do not form a straight line.

Practice Set 19 : ---

Practice Set 20 : 1. $m\angle APB = 133^\circ$,

$m\angle BPC = 47^\circ$, $m\angle CPD = 133^\circ$,

2. $m\angle PMS = (180-x)^\circ$, $m\angle SMQ = x^\circ$,

$m\angle QMR = (180-x)^\circ$,

Practice Set 21 : 1. $m\angle A = m\angle B = 70^\circ$

2. 40° , 60° , 80° 3. $m\angle ACB = 34^\circ$,

$m\angle ACD = 146^\circ$, $m\angle A = m\angle B = 73^\circ$

Practice Set 22 : 1. (i) $\frac{71}{252}$ (ii) $\frac{67}{15}$

(iii) $\frac{430}{323}$ (iv) $\frac{255}{77}$ 2. (i) $\frac{16}{77}$ (ii) $\frac{14}{45}$ (iii) $-\frac{13}{6}$

(iv) $\frac{7}{6}$ 3. (i) $\frac{6}{55}$ (ii) $\frac{16}{25}$ (iii) $-\frac{2}{3}$ (iv) 0

4. (i) $\frac{5}{2}$ (ii) $-\frac{8}{3}$ (iii) $-\frac{39}{17}$ (iv) $\frac{1}{7}$ (v) $-\frac{3}{22}$

5. (i) $\frac{4}{3}$ (ii) $\frac{100}{121}$ (iii) $\frac{7}{4}$ (iv) $-\frac{1}{6}$ (v) $\frac{2}{5}$

(vi) $-\frac{10}{7}$ (vii) $-\frac{9}{88}$ (viii) $\frac{25}{2}$

Practice Set 23 : $\odot$ (i) $\frac{3}{7}, \frac{4}{7}, \frac{5}{7}$ (ii) $\frac{23}{30}, \frac{22}{30}, \frac{21}{30}$

(iii) $-\frac{9}{15}, -\frac{7}{15}, \frac{4}{15}$ (iv) $\frac{6}{9}, 0, -\frac{4}{9}$ (v) $-\frac{2}{4}, -\frac{1}{4}, \frac{3}{4}$

(vi) $\frac{17}{24}, \frac{11}{24}, -\frac{13}{24}$ (vii) $\frac{6}{7}, \frac{8}{7}, \frac{9}{7}$

(viii) $-\frac{1}{8}, -\frac{2}{8}, -\frac{5}{8}$ etc.

Practice Set 24 : $\odot$ 1. 3.25 2. -0.875 3. 7.6

4. $0.41\dot{6}$ 5. $3.\overline{142857}$ 6. $1.\dot{3}$ 7. $0.\dot{7}$

Practice Set 25 : 1. 149 2. 0 3. 4 4. 60

5. $\frac{17}{20}$

Practice Set 26 : 1. -- 2. (i) 1024 (ii) 125

(iii) 2401 (iv) -216 (v) 729 (vi) 8 (vii) $\frac{64}{125}$

(viii) $\frac{1}{16}$

Practice Set 27 : $\odot$ (i) 7^6 (ii) $(-11)^7$ (iii) $\left(\frac{6}{7}\right)^8$

(iv) $\left(-\frac{3}{2}\right)^8$ (v) $(a)^{23}$ (vi) $\left(\frac{p}{5}\right)^{10}$

Practice Set 28 : 1. (i) a^2 (ii) m^{-3} (iii) p^{-10}

(iv) 1 2. (i) 1 (ii) 49 (iii) $\frac{4}{5}$ (iv) 16

Practice Set 29 : 1. (i) $\left(\frac{15}{12}\right)^{12}$ (ii) 3^{-8}

(iii) $\left(\frac{1}{7}\right)^{-12}$ (iv) $\left(\frac{2}{5}\right)^6$ (v) 6^{20} (vi) $\left(\frac{6}{7}\right)^{10}$

(vii) $\left(\frac{2}{3}\right)^{-20}$ (viii) $\left(\frac{5}{8}\right)^{-6}$ (ix) $\left(\frac{3}{4}\right)^6$ (x) $\left(\frac{2}{5}\right)^{-6}$

2. (i) $\left(\frac{7}{2}\right)^2$ (ii) $\left(\frac{3}{11}\right)^5$ (iii) $\left(\frac{6}{1}\right)^3$ or 6^3

(iv) $\frac{1}{y^4}$

Practice Set 30 : 1. (i) 25 (ii) 35 (iii) 17

(iv) 64 (v) 33

Practice Set 31 : ---

Practice Set 32 : $\odot$ Monomials = $7x$; a ; 4

Binomials = $5y - 7z$; $5m - 3$

Trinomials = $3x^3 - 5x^2 - 11$; $3y^2 - 7y + 5$

Polynomials = $1 - 8a - 7a^2 - 7a^3$

Practice Set 33 : $\odot$ (i) $22p + 18q$

- (ii) $18a + 24b + 21c$ (iii) $19x^2 - 20y^2$
 (iv) $-11a^2b^2 + 44c$ (v) $3y^2 - 8y + 9$
 (vi) $4y^2 + 10y - 8$

Practice Set 34 : (i) $xy + 7z$
 (ii) $4x + 2y + 4z$ (iii) $-12x^2 + 16xy + 20y^2$
 (iv) $-10x^2 + 24xy + 16y^2$
 (v) $-12x + 30z - 19y$

Practice Set 35 : 1. (i) $288x^2y^2$ (ii) $92xy^3z^2$
 (iii) $48ac + 68bc$ (iv) $36x^2 + 73xy + 35y^2$
 2. $(40x^2 + 49x + 15)$ sqcm

Practice Set 36 : 1. $-2(7x + 12y)$

2. $-345x^5y^4z^3$ 3. (i) 1 (ii) $\frac{5}{2}$ (iii) 1 (iv) 3
 (v) -5 (vi) $\frac{69}{5}$ 4. 16 years, 11 years 5. 130
 6. 30 Notes 7. 132, 66

Miscellaneous Problems : Set 1 : 1. (i) 80
 (ii) -6 (iii) -48 (iv) 25 (v) 8 (vi) -100
 2. (i) 15; 675 (ii) 38; 228 (iii) 17; 1683
 (iv) 8; 96 3. (i) $\frac{14}{17}$ (ii) $\frac{13}{11}$ (iii) $\frac{3}{4}$
 4. (i) 28 (ii) 15 (iii) 36 (iv) 45
 (v) 16 5. -- 6. (i) 77 (ii) 25 (iii) $\frac{49}{24}$
 (iv) 1026 7. (i) $\frac{41}{48}$ (ii) $\frac{23}{20}$ (iii) -8
 (iv) $\frac{63}{20}$ 8. -- 9. -- 10. -- 11. -- 12. --
 13. (i) 55° (ii) $(90 - a)^\circ$ (iii) 68°
 (iv) $(50 + x)^\circ$ 14. (i) 69° (ii) 133° (iii) 0°
 (iv) $(90 + x)^\circ$ 15. -- 16. (i) 110° (ii) 55°
 (iii) 55° 17. (i) 5^7 (ii) $\left(\frac{3}{2}\right)^3$ (iii) $\left(\frac{7}{2}\right)^2$
 (iv) $\left(\frac{4}{5}\right)^3$ 18. (i) 1 (ii) $\frac{1}{1000}$ (iii) 64
 (iv) 16 19. (i) $8a + 10b - 13c$
 (ii) $21x^2 - 10xy - 16y^2$ (iii) $18m - n$

- (iv) $2m - 19n + 11p$ 20. (i) $x = -10$
 (ii) $y = 5$

Multiple choice questions : 1. Incentre

2. $\left(\frac{7}{3}\right)^{12}$ 3. 3 4. $\frac{3}{2}$ 5. $10 \times 3 + (5 + 2)$

Practice Set 37 : 1. ₹ 240 2. 32 bunches of feed 3. 18 Kg 4. ₹ 24000 5. ₹ 104000

Practice Set 38 : 1. 10 days; 4 days
 2. 50 pages 3. 2 hours; 3 hours 4. 20 days

Practice Set 39 : 1. ₹ 12800; ₹ 16000
 2. ₹ 10000; ₹ 24000 3. ₹ 38000; ₹ 9120
 4. ₹ 147; ₹ 343 5. ₹ 54000; ₹ 15120

Practice Set 40 : 1. ₹ 1770
 2. ₹ 25000; ₹ 375000 3. ₹ 14875 4. ₹ 3600
 5. ₹ 180000

Practice Set 41 : 1. 10% 2. ₹ 300 3. 5 years
 4. ₹ 41000 5. (i) ₹ 882, ₹ 5082
 (ii) ₹ 5000, ₹ 6200 (iii) 2 years, ₹ 8800
 (iv) ₹ 12000, 10 years (v) ₹ 19200, ₹ 21600

Practice Set 42 : 1. (i) 14 cm; 44 cm
 (ii) 14 cm; 88 cm (iii) 98 cm; 196 cm
 (iv) 11.55 cm; 23.1 cm 2. 28 cm
 3. ₹ 56320 4. 250 rotations

Practice Set 43 : 1. 240°
 2. Names of minor arcs - arc PXQ, arc PR, arc RY, arc XP, arc XQ, arc QY
 Names of major arcs - arc PYQ, arc PQR, arc RQY, arc XQP, arc QRX
 Names of semicircular arcs - arc QPR, arc QYR 3. 250°

Practice Set 44 : 1. 2 times 2. 3 times
 3. 90 m 4. 8 m

Practice Set 45 : 1. 144 sqcm 2. 75 sqcm

3. 46 cm 4. 9 times

Practice Set 46 : 1. 1170 sqcm 2. 8.64 sqcm

3. ₹ 2302750 4. 800 tiles; 3200 tiles

5. 156 m; 845 sqm

Practice Set 47 : 1. (i) 54 sqcm (ii) 150 sqcm
(iii) 311.04 sqm (iv) 277.44 sqm

(v) 181.5 sqm 2. (i) 460 sqcm (ii) 58.8 sqcm

(iii) 31.6 sqm (iv) 171 sqcm 3. 39.5 sqcm

4. 6.5 sqm, ₹ 1950

Practice Set 48 : 1. (i) 25 units (ii) 40 units

(iii) 15 units 2. 26 cm 3. 16 cm 4. 12 m

Practice Set 49 : 1. (i) Yes. (ii) No. (iii) No.

(iv) No. (v) Yes. (vi) No.

2. (i) Yes. (ii) No. (iii) Yes. (iv) No. (v) No.

Practice Set 50 : 1. (i) $25a^2 + 60ab + 36b^2$

(ii) $\frac{a^2}{4} + \frac{ab}{3} + \frac{b^2}{9}$ (iii) $4p^2 - 12pq + 9q^2$

(iv) $x^2 - 4 + \frac{4}{x^2}$ (v) $a^2x^2 + 2abxy + b^2y^2$

(vi) $49m^2 - 56m + 16$ (vii) $x^2 + x + \frac{1}{4}$

(viii) $a^2 - 2 + \frac{1}{a^2}$ 2. $64 - \frac{16}{x} + \frac{1}{x^2}$

3. $(mn + 7pq)^2$ 4. (i) 994009 (ii) 10404

(iii) 9409 (iv) 1010025

Practice Set 51 : 1. (i) $x^2 - y^2$ (ii) $9x^2 - 25$

(iii) $a^2 - 36$ (iv) $\frac{x^2}{25} - 36$ 2. (i) 249996

(ii) 9991 (iii) 2484 (iv) 9996

Practice Set 52 : (i) $3 \times 67 \times a \times a \times a \times b \times b$

(ii) $13 \times 7 \times x \times y \times t \times t$

(iii) $2 \times 2 \times 2 \times 3 \times a \times a \times b \times b$

(iv) $t \times r \times r \times s \times s \times s$

Practice Set 53 : (i) $(p+q)(p-q)$

(ii) $(2x+5y)(2x-5y)$ (iii) $(y+2)(y-2)$

(iv) $\left(p + \frac{1}{5}\right)\left(p - \frac{1}{5}\right)$ (v) $\left(3x + \frac{1}{4}y\right)\left(3x - \frac{1}{4}y\right)$

(vi) $\left(x + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)$ (vii) $ab(a-1)$

(viii) $2x^2(2xy-3x)$ (ix) $\frac{1}{2}(y+4z)(y-4z)$

(x) $2(x+2y)(x-2y)$

Practice Set 54 : 1. 12.29 mm 2. ₹ 892

3. 626.6 mm 4. 49.4 kg

Practice Set 55 : 1.

Height	131	132	133	134	135	136	137	138	139	140	Total
Children	3	3	5	3	3	2	2	1	3	5	30

2.

People	1	2	3	4	5	Total
Families	1	13	16	13	7	50

3.

Score	1	2	3	4	5	6	Total
Frequency	2	8	13	8	5	4	40

4.

Chapatis	2	3	4	5	Total
Children	9	10	8	3	30

Miscellaneous Problems : Set 2 : 1. 4 years

2. 5 days 3. ₹ 12000; ₹ 18000 4. 17.6 cm

5. (i) $4a^2 - 12ab + 9b^2$ (ii) $100 + 20y + y^2$

(iii) $\frac{p^2}{9} + \frac{pq}{6} + \frac{q^2}{16}$ (iv) $y^2 - 6 + \frac{9}{y^2}$

6. (i) $x^2 - 25$ (ii) $4a^2 - 169$ (iii) $16z^2 - 25y^2$

(iv) $4t^2 - 25$ 7. 3.3 km

8. 25 m; 130 m; ₹ 94500 9. 29 Units;

70 Units 10. 384 cm² 11. $73y^2z^3(5y^2 - 2z)$

Multiple choice questions : 1. 36 2. 1120

3. ₹ 1600, ₹ 1000.