

Infinity Think Beyond — Class VIII Mathematics

Practice Paper (Mid-Term) — Set 3 — Answer Key

Based on Ganita Prakash – Part I

[illegible]

Q.No	Step-by-Step Solution	Marks per Step
SECTION – A (Q1, subparts i–xii, 1 mark each)		
	(x) This is the definition of inverse proportion Answer: (b) inverse proportion (xi) Diagonals of a square always meet at 90° Answer: (d) 90° (xii) $(200-3)^2 = 40000 - 1200 + 9$ Answer: (a) 38809	
SECTION-B (Q2–7, 2 marks each)		
2	Q2 $2560 = 2^9 \times 5$ 2^9 is already fine; 5^1 is not a multiple-of-3 exponent Divide by 5 Answer: 5	2 marks
3	Q3 $(\frac{1}{3} + \frac{1}{2}) \times 6 = (\frac{5}{6}) \times 6$ Answer: 5	2 marks
4	Q4 Angles: $60^\circ, 80^\circ, 100^\circ, 120^\circ$ Check sum = 360° ✓ Answer: $60^\circ, 80^\circ, 100^\circ, 120^\circ$	2 marks
5	Q5 (a) CM=900, XC=90, IX=9 $900+90+9$ Answer: 999 OR (b) Let numbers be $6k, 6k+6, 6k+12, 6k+18$ $24k+36=180 \rightarrow k=6$ Answer: 36, 42, 48, 54	2 marks
6	Q6 7.5×50 Answer: 375 km	2 marks
7	Q7	2 marks

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SECTION – A (Q1, subparts i–xii, 1 mark each)		
	$21^2 - 25 = 441 - 25$ Answer: 416	
SECTION-C (Q8–10, 3 marks each)		
8	Q8 (i) MCM=1900, DCLXVI=666 $1900 - 666 = 1234$ Answer: MCCXXXIV (ii) DCCCXC=890, CDLV=455 $890 - 455 = 435$ Answer: CDXXXV	1.5 marks each
9	Q9 (a) In a kite, the angles between the unequal side pairs ($\angle B$ and $\angle D$) are equal Answer: $\angle D = 95^\circ$ OR (b) Draw diagonal 1 (8 cm); mark its midpoint Through the midpoint, draw a perpendicular line Mark 4 cm on either side of the midpoint along this perpendicular (total diagonal 2 = 8cm... adjust to 5cm: 2.5cm each side) Join the four endpoints to form the rhombus Answer: Rhombus constructed using perpendicular-bisecting diagonals of 5 cm and 8 cm	3 marks
10	Q10 (i) $4x(2x+5y) - 3y(2x+5y) = 8x^2 + 20xy - 6xy - 15y^2$ Answer: $8x^2 + 14xy - 15y^2$ (ii) $a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$ (standard identity) Answer: $a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$	1.5 marks each
SECTION-D (Q11–13, 5 marks each)		
11	Q11 (i) $4500 = 2^2 \times 3^2 \times 5^3$ 2^2 needs 1 more 2; 3^2 needs 1 more 3; 5^3 is fine Multiply by $2 \times 3 = 6$	3+2 marks

Q.No	Step-by-Step Solution	Marks per Step
SECTION – A (Q1, subparts i–xii, 1 mark each)		
	$4500 \times 6 = 27000 = 30^3$ Answer: Multiply by 6; cube root of product = 30 (ii) $11025 = 3^2 \times 5^2 \times 7^2 = (3 \times 5 \times 7)^2$ $\sqrt{11025} = 105$ Answer: 105	
12	Q12 Main (i): $2^{5x-3x-1} = 2^{2x-1}$ Answer: 2^{2x-1} Main (ii): $64 = 2^6$, so $n=6$ Answer: $n = 6$ OR (i): $5^2 \div 5^{-3} = 5^5$ Answer: 3125 OR (ii): $(\frac{2}{3})^{-2} \times (\frac{2}{3})^2 = (\frac{2}{3})^0$ Answer: 1	2.5+2.5 marks
13	Q13 (i) Try $AB=82$: $82 \times 4 = 328$ (reversed digits give $A=8, B=2, C=3$) Answer: $A=8, B=2, C=3$ (ii) $5x2y6$ divisible by 4 (last two digits $y6$) and 9 (digit sum $13+x+y$) Answer: $(x,y) = (0,5), (2,3), (4,1), (5,9), (7,7), (9,5)$ (iii) A number divisible by 11 has alternating digit-sum difference divisible by 11 Answer: General form: $11k$, for any integer k	2+2+1 marks
SECTION-E (Q14–16, case-based, 4 marks each)		
14	Q14 (i) Base angles at the same base of an isosceles trapezium are equal Answer: $\angle K = 100^\circ$	1+1+2 marks

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SECTION – A (Q1, subparts i–xii, 1 mark each)		
	(ii) $IJ \parallel LK$, so $\angle I$ and $\angle L$ are co-interior angles: $180 - 100$ Answer: $\angle I = 80^\circ$ (iii)(a): $\angle J$ is the base angle at the same base as $\angle I$ Answer: $\angle J = 80^\circ$ (iii)(b) OR: Perimeter = $IJ + LK + IL + JK = 4 + 6 + 5 + 5$ Answer: 20 cm	
15	Q15 (i) Area of total plot Answer: $(a+8)^2$ (ii) Area of cropped region Answer: $(a-3)^2$ (iii)(a): $(a+8)^2 - (a-3)^2 = [(a+8)+(a-3)][(a+8)-(a-3)]$ $= (2a+5)(11)$ Answer: $22a + 55$ (iii)(b) OR: At $a=12$: $22(12)+55 = 264+55$ Answer: 319 m^2	1+1+2 marks
16	Q16 (i) $360 \div 4$ Answer: 90 km per hour (ii) 90×6.5 Answer: 585 km (iii)(a): $630 \div 90$ Answer: 7 hours	1+1+2 marks

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SECTION – A (Q1, subparts i–xii, 1 mark each)		
	(iii)(b) OR: $4 \times 630 = 2520$; $360 \times 7 = 2520$ — equal Answer: Yes, they are in proportion	

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