SUMMATIVE ASSESSMENT - I

CLASS: VIII MATHEMATICS PRINCIPLES OF EVALUATION

SECTION - I [2 Marks each]

①

1	2.56	1.6
	1	
26	1 56	
	1 56	
	0	

→ $1\frac{1}{2}$ Marks

$\therefore \sqrt{2.56} = 1.6 \rightarrow \frac{1}{2}$ Mark

②

No. we cannot find the reciprocal of zero (0). → $\frac{1}{2}$ Mark

No. There is no rational number found when it is multiplied by '0' gives 1. → $\frac{1}{2}$ Mark

Reason: 0 x any number = 0, but not '1'. → 1 Mark.

③

Formula for calculating Amount with compound interest,

$$A = P\left(1+\frac{R}{100}\right)^n \rightarrow 1 \text{ Mark}$$

A = Amount
P = principal
R = Rate of Interest
n = number of times the interest is reckoned.

} 1 Mark

④

The area of the square field = 1024 sq. units → $\frac{1}{2}$ Mark

Length of the side of the square field = $\sqrt{1024}$
= 32 units → $\frac{1}{2}$ Mark

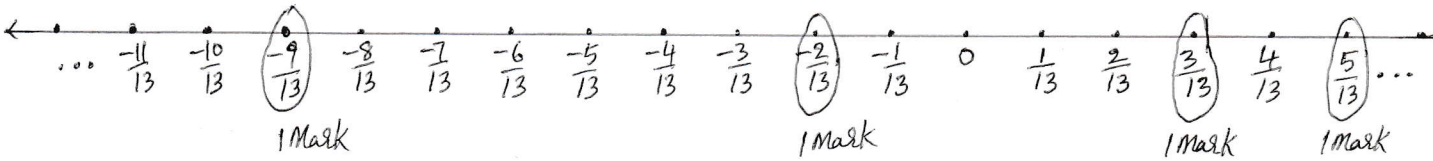
3	10 24	32
	9	
62	1 24	
	1 24	
	0	

→ 1 Mark

SECTION - II [4 Marks each]

⑤

$-\frac{2}{13}, \frac{3}{13}, \frac{5}{13}, \frac{-9}{13}$ on the number line



⑥

P = 5, Q = 3

$2P^3 + 5Q^2 - 4P^2Q = 2(5)^3 + 5(3) - 4(5)^2(3)$ → 1 Mark

$= 2 \times 125 + 15 - 300$ → 1 Mark

$= 250 + 15 - 300$ → 1 Mark

$= 265 - 300 = -35$ → 1 Mark

⑦ The following properties are involved in the product of $\frac{2}{5} \times (5 \times \frac{7}{6}) + \frac{1}{3} \times (3 \times \frac{4}{11})$:

① Multiplicative Associative property → 1 Mark

② Multiplicative Inverse → 1 Mark

③ Multiplicative Identity → 1 Mark

④ closure property under addition → 1 Mark

⑧ The length of the rectangular park $= 18\frac{3}{5}$ m $= \frac{93}{5}$ m

Breadth of the rectangular park $= 8\frac{2}{3}$ m $= \frac{26}{3}$ m } 1 Mark

Area of the Rectangular Park, $A = l \times b$ sq. m → 1 Mark

$A = \frac{93}{5} \times \frac{26}{3}$ → 1 Mark

$= \frac{806}{5}$

$= 161\frac{1}{5}$ sq. metres } 1 Mark

⑨ Given equation is $\frac{y}{3} - \frac{y}{4} = 14$

$\frac{4y - 3y}{12} = 14$ } 1 Mark

$\frac{y}{12} = 14$

$y = 12 \times 14$ } 2 Marks

$y = 168$

∴ The value of y for which $\frac{y}{3} - \frac{y}{4} = 14$ is true is 168. → 1 Mark

SECTION – III [8 marks each]

10 ⓐ Given that, $7^{2n+1} \div 49 = 7^3$

$\frac{7^{2n+1}}{49} = 7^3$ } 2 Marks

$\frac{7^{2n+1}}{7^2} = 7^3$ → 2 Marks

$7^{2n+1-2} = 7^3$ $\left[\because \frac{a^m}{a^n} = a^{m-n}\right]$

$7^{2n-1} = 7^3$ } 2 Marks

$2n - 1 = 3$ [∵ Bases are equal, exponents are equal] → 1 Mark

$2n = 3 + 1$

$2n = 4$

$n = \frac{4}{2}$

∴ $n = 2$ } 1 Mark

[OR]

10 (b) Number of plants that are to be planted = 8289 → 1 Mark

Number of plants remained after planting the trees in a square shape = 8 → 1 Mark

Number of plants planted in a square shape = 8289 − 8 = 8281 → 1M

Number of plants planted in each row = $\sqrt{8281}$ = 91 } 2 Mark

$$\begin{array}{r|l|l} 9 & 82\,81 & 91 \\ & 81 & \\ \hline 181 & 181 & \\ & 181 & \\ \hline & 0 & \end{array}$$ → 2 Marks

∴ Number of plants planted in each row when 8281 plants were planted in square shape = 91 } 1 Mark

11 (a) Selling price of a table = ₹2142
profit % = 5% } 1 Mark

cost price = $\frac{100 \times S.P}{100 + \text{gain\%}}$ → 1 Mark

$= \frac{100 \times 2142}{100+5}$

$= 100 \times \frac{2142}{105}$

= ₹2040 } 2 Marks

cost price = ₹2040, percentage of profit = 10% → 1 Mark

Selling price = $c.p\left(\frac{100 + \text{gain\%}}{100}\right)$ → 1 Mark

$= 2040 \times \frac{100+10}{100}$ → 1 Mark

$= 2040 \times \frac{110}{100}$

∴ S.P = ₹2244 } 1 Mark

[OR]

11 (b) principal = Rs 1000
Rate of Interest = 10% (per annum) } 1 Mark

Rate of Interest = $\frac{10}{4} = \frac{5}{2}$% (per quarter) → 1 Mark

n = number of times interest is to be reckoned = 4 → 1 Mark

Amount, $A = P\left(1 + \frac{R}{100}\right)^n$ → 1 Mark

$A = 1000\left(1 + \frac{5/2}{100}\right)^4$ → 1 Mark

$A = 1000\left(1 + \frac{5}{200}\right)^4$

$A = 1000\left(\frac{205}{200}\right)^4$ → 1 Mark

$A = 1000 \times \frac{205}{200} \times \frac{205}{200} \times \frac{205}{200} \times \frac{205}{200}$

$A = ₹1103.81$ } 1 Mark

compound Interest for 1 year $= A - P$

$= 1103.81 - 1000$

$\therefore C.I = ₹103.81$ } 1 Mark

12(a) subtraction is not Associative in rational numbers. → 1 Mark

Let $\frac{1}{2}, \frac{3}{4}, -\frac{5}{4}$ are any three rational numbers } 1 Mark

consider $a = \frac{1}{2}$, $b = \frac{3}{4}$, $c = -\frac{5}{4}$

$a - (b - c) = \frac{1}{2} - \left[\frac{3}{4} - \left(-\frac{5}{4}\right)\right]$ → 1 Mark

$= \frac{1}{2} - \left[\frac{3}{4} + \frac{5}{4}\right]$

$= \frac{1}{2} - \left[\frac{3+5}{4}\right]$

$= \frac{1}{2} - \frac{8}{4}$

$= \frac{2-8}{4}$

$= -\frac{6}{4}$ } 1 Mark

$(a - b) - c = \left[\frac{1}{2} - \frac{3}{4}\right] - \left(-\frac{5}{4}\right)$ → 1 Mark

$= \left(\frac{2-3}{4}\right) + \frac{5}{4}$

$= -\frac{1}{4} + \frac{5}{4}$

$= \frac{-1+5}{4}$

$= \frac{4}{4}$ } 1 Mark

Here, $a - (b - c) \neq (a - b) - c$ → 1 Mark

$\therefore$ Rational numbers do not satisfy Associative property under subtraction → 1 Mark

[OR].

12(b) (A) According to prameela $3^{-4} \times 3^{-2} = 3^{8}$ I do not agree with the solution. → 1M

Because $3^{-4} \times 3^{-2} = 3^{-4-2} = 3^{-6}$ $[\because a^m \times a^n = a^{m+n}]$ → 1 Mark

(B) $\frac{7^5}{7^2} = 7^3$. I agree with the solution. → 1 Mark

Because $\frac{7^5}{7^2} = 7^{5-2} = 7^3$ $\left[\because \frac{a^m}{a^n} = a^{m-n}\right]$ → 1 Mark

(C) $(5^2)^3 = 5^5$. I do not agree with the solution. → 1 Mark

Because $[5^2]^3 = 5^{2\times3} = 5^6$ $[\because (a^m)^n = a^{mn}]$. → 1 Mark

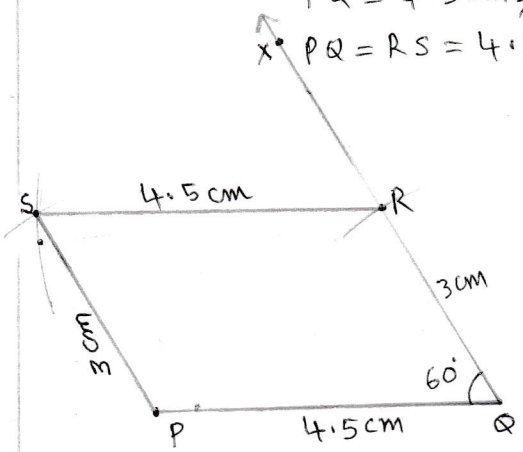
(D) $5^{-2} = -25$. I do not agree with the solution. → 1 Mark

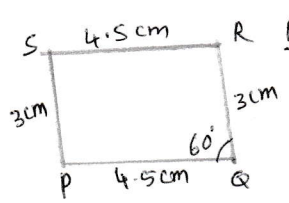
$5^{-2} = \frac{1}{5^2} = \frac{1}{25}$ $\left[\because a^{-m} = \frac{1}{a^m}\right]$ → 1 Mark

13 (a) Given that in Parallelogram PQRS

$PQ = 4.5cm$, $QR = 3cm$, $\angle PQR = 60^\circ$ → $\frac{1}{2}$ Mark

$PQ = RS = 4.5cm$, $QR = PS = 3cm$ [∵ opposite sides are equal] → $\frac{1}{2}$ M





Rough Diagram

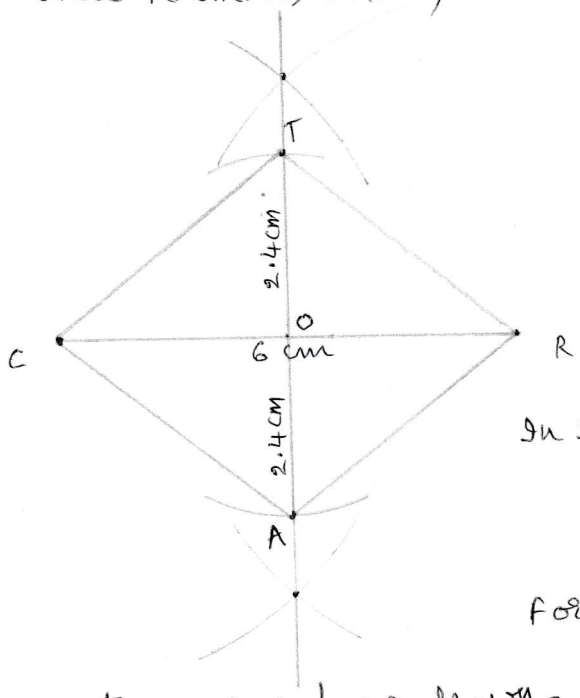
For drawing Parallelogram → 4 Marks

Construction steps: ① I have drawn a linesegment $PQ = 4.5cm$

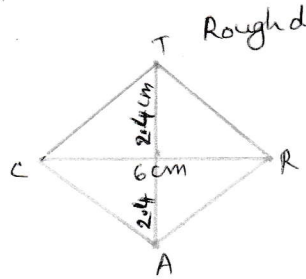
3 Marks
② I have drawn a ray QX such that $\angle PQX = 60^\circ$
③ with centre Q and radius 3cm I have drawn an arc to cut $\overrightarrow{QX}$ at R.
④ I have drawn an arc with centre R and radius 4.5cm
⑤ I have drawn an arc with centre P and radius 3cm to cut the previous arc drawn at S.
⑥ I have joined R, S and P, S to get the required parallelogr

[OR]

13 (b) Given that In a Rhombus CART, $CR = 6cm$, $AT = 4.8cm$ → $\frac{1}{2}$ M



Rough diagram



In rhombus, Diagonals bisect each other perpendicularly.

So $\angle COT = 90^\circ$ $\frac{1}{2}$

$OA = OT = \frac{AT}{2} = \frac{4.8}{2} = 2.4cm$ → 1 Mar

For drawing Rhombus → 3 Marks

Construction steps: ① I have drawn a Linesegment $CR = 6cm$

② I have drawn a perpendicular bisector of $\overline{CR}$ to intersect at 'O'.

③ with centre 'O' and radius 2.4cm I have drawn two arcs on both sides of $\overline{CR}$ to cut the perpendicular bisector of $\overline{CR}$ at A, T.

④ I have joined C, A; A, R; R, T and T, C to get the

required Rhombus CART.

Note: ① construction steps are must for any construction

② we do not allot marks for Rough diagram if the construction is correct.

③ But, we can allot the marks for rough diagram when the construction is not completely correct.

PART-B [1 Mark each]

(14) D

(15) B

(16) A

(17) A

(18) B

(19) C

(20) A

(21) B

(22) B

(23) C

(24) B

(25) B

(26) B

(27) D

(28) A

(29) B

(30) C

(31) C

(32) B

(33) B