

Primary (Class-8th) Education Certificate Examination 2019

Subject : Mathematics

Time : 2.30 hrs.

Total Marks : 100

(Model Answer)

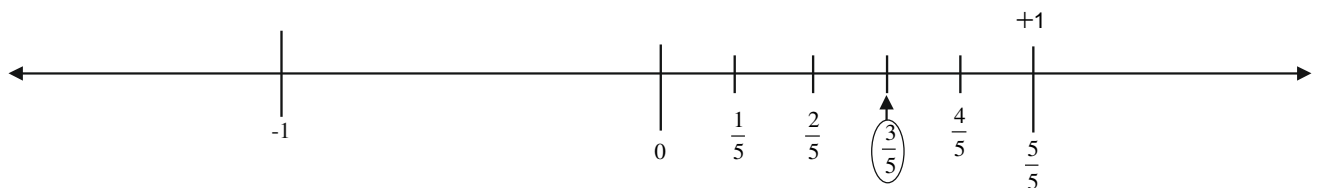
Ans 1. (A) Choose the correct alternative (Marks-10)

- (i) (b) $x = 2$
- (ii) (a) $42 - x$
- (iii) (c) Rs 32
- (iv) (c) 60 sq. cm
- (v) (b) $\frac{5}{7}$

(B) Fill in the blanks : (Marks-10)

- (i) $\frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$ Or Amount - Principal
- (ii) Height
- (iii) 5
- (iv) Square
- (v) 9

Ans 2. (Marks-4)



- (i) on showing 0, +1, -1 on number line 1
- (ii) on showing $\frac{1}{5}$ to $\frac{5}{5}$ 2
- (iii) on showing $\frac{3}{5}$ 1

Ans 3. L.C.M. of 3 and 9 = 9 (Marks-4)

$$\frac{2}{9} + \frac{1}{3} - \frac{5}{9} \quad (1)$$

$$= \frac{2 \times 1 + 1 \times 3 - 5 \times 1}{9} \quad (1)$$

$$= \frac{2+3-5}{9} \quad (1)$$

$$= \frac{5-5}{9} = \frac{0}{9} = 0 \quad (1)$$

Ans 4. Given :- Area of the parallelogram = 75 cm² } (Marks-4)
Height (h) = 5 cm } (1)

Base (b) = ?

Area of the Parallelogram = 75 cm²

Base × height = 75 (1)

Base × 5 = 75

Base = $\frac{75}{5}$ (1)

Base = 15 cm (1)

OR

Area of the Parallelogram = 75 cm²

Height (h) = 5 cm (1)

Base (b) = ?

Base = $\frac{\text{Area of the Parallelogram}}{\text{Height}}$ (1)

= $\frac{75}{5}$ (1)

= 15 cm (1)

Ans 5. Diameter of the base of the cylinder (d) = 20 m (Marks-4)

Height (h) = 21 m (1)

$$\text{Radius} = \frac{\text{Diameter}}{2} = \frac{20}{2} = 10\text{m} \quad (1)$$

Curved Surface of cylinder = $2 \pi rh$ (1)

$$= 2 \times \frac{22}{7} \times 10 \times 21$$

= 1320 sq. m (1)

Ans 6. (Marks-4)

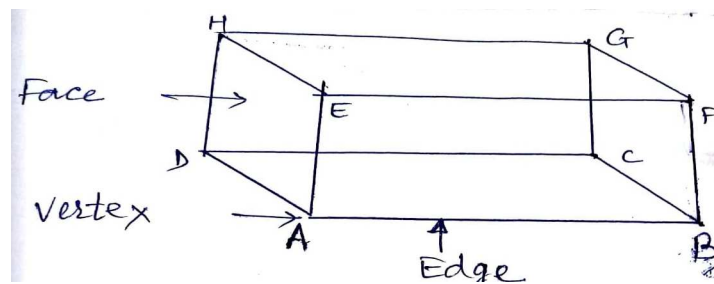


Figure = 3 marks

Labelling = 1 Marks

Labelled diagram of Cuboid

Ans 7. (Marks-4)

Given :- Area of the base of the cylinder = 154 cm^2 (1)

Height of the Cylinder = 8 cm

Volume of cylinder = Area of base X height (1)

$$= 154 \times 8 \quad (1)$$

$$= 1232 \text{ cu. cm} \quad (1)$$

or cm^3

Ans 8.

(Marks-6)

$$\text{Print value} = \text{Rs } 40, \text{ discount} = 12\% \quad (1)$$

$$\therefore \text{Since on a print value of Rs. 100, discount is Rs 12} \quad (1)$$

$$\therefore \text{on a print value of Rs. 40, Discount will be} = \frac{12}{100} \times 40 \quad (1)$$

$$= \frac{48}{10} = \text{Rs } 4.80 \quad (1)$$

$$\text{Therefore selling price} = \text{Rs } 40 - \text{Rs } 4.8 \quad (1)$$

$$= \text{Rs } 35.20 \quad (1)$$

Ans 9.

$$\frac{7m+6}{4m+2} = 2$$

(Marks-6)

$$\Rightarrow 7m+6 = 2(4m+2) \quad (2)$$

$$\Rightarrow 7m+6 = 8m+4 \quad (1)$$

$$7m-8m = 4-6 \quad (1)$$

$$\Rightarrow -m = -2 \quad (1)$$

$$\Rightarrow m = 2 \quad (1)$$

Ans 10.

Given :- Length of the 1st Parallel Side (b_1) = 20 cm (Marks-6)

$$\text{Length of the 2nd parallel side } (b_2) = 8 \text{ m} \quad (1)$$

$$\text{Height } (h) = 12 \text{ m}$$

$$\text{Area of a trapezium} = ?$$

$$\text{Area of a trapezium} = \frac{1}{2} (b_1 + b_2) \times h \quad (1)$$

$$= \frac{1}{2} (20 + 8) \times 12 \quad (1)$$

$$= \frac{1}{2} \times 28 \times 12 \quad (1)$$

$$= 14 \times 12 \quad (1)$$

$$= 168 \text{ sq. m} \quad (1)$$

Ans 11. Given : Radius of Big circle R = 12 cm (Marks-6)

Radius of small circle r = 9 cm (1)

Area of Circular path = ?

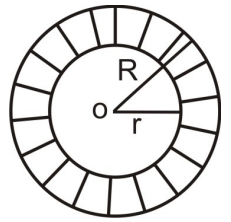
Area of Circular path (A) = $\pi(R^2 - r^2)$ (1)

$$= \frac{22}{7} \times (12^2 - 9^2) \quad (1)$$

$$= \frac{22}{7} \times (12 + 9)(12 - 9) \quad (1)$$

$$= \frac{22}{7} \times 21 \times 3 \quad (1)$$

$$= 198 \text{ cm}^2 \quad (1)$$



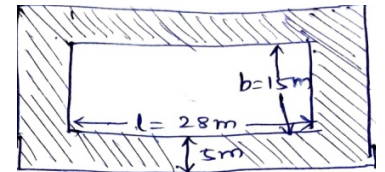
Or

Given:- Length of basket ball ground = 28 m (1)

Breadth of basket ball ground = 15 m

Width of gallery = 5 m (1)

Area of gallery (A) = ?



Length of ground including gallery = $5 + 28 + 5 = 38 \text{ m}$

Breadth of ground including gallery = $5 + 15 + 5 = 25 \text{ m}$ (1)

Area of gallery = Area of big rectangle – Area of Smaller rectangle (1)

$$= (38 \times 25) - (28 \times 15)$$

$$= 950 - 420 \quad (1)$$

$$= 530 \text{ sq.m.} \quad (1)$$

Ans 12. Given:- Radius of Well (r) = 3.5 m (Marks -6)

Depth of Well (h) = 20 m (1)

Volume of mud digged out from the well (V)= ?

Volume of mud digged = Volume of Cylinder (1)

$$= \pi r^2 h \quad (1)$$

$$= \frac{22}{7} \times (3.5)^2 \times 20 \quad (1)$$

$$= \frac{22}{7} \times 3.5 \times 3.5 \times 20 \quad (1)$$

$$= 770 \text{ cu.m} \quad (1)$$

OR

Radius of cylindrical tin box (r) = 7cm (1)

Height of Cylindrical tin box (h) = 15 cm

Total Surface area of sheet used for making tin box = ?

Total Surface area of sheet

Used for making tin box = Total Surface area of cylinder (1)

$$= 2 \pi r (r + h) \quad (1)$$

$$= 2 \times \frac{22}{7} \times 7 \times (7 + 15) \quad (1)$$

$$= 44 \times 22 \quad (1)$$

$$= 968 \text{ sq. cm.} \quad (1)$$

Ans 13. Let the number be x (Marks-08)

$$\text{Denominator} = x + 2 \quad (1)$$

$$\text{Original rational number} = \frac{x}{x + 2} \quad (1)$$

According to the questions

$$\text{Numerator is increased 4 times} = 4x$$

$$8 \text{ is added to denominator} = x + 2 + 8 = x + 10 \quad (1)$$

$$\text{New rational number} = \frac{4x}{x + 10} \quad (1)$$

$$\frac{4x}{x + 10} = \frac{4}{3}$$

On cross multiplication (1)

$$\Rightarrow 4x \times 3 = 4(x + 10)$$

$$\Rightarrow 12x = 4x + 40$$

$$\Rightarrow 12x - 4x = 40$$

$$\Rightarrow 8x = 40 \quad (1)$$

$$\Rightarrow x = \frac{40}{8} = 5 \quad (1)$$

$$\text{Original number} \quad \frac{x}{x + 2} = \frac{5}{5 + 2} = \frac{5}{7} \quad (1)$$

Or

Let the present age of Manisha be x years

$$\therefore \text{Present age of Manisha's mother} = 3x \text{ years} \quad (1)$$

After 4 years

$$\text{Manisha's age will be} = (x + 4) \text{ Years} \quad (1)$$

$$\text{Her mother's age} = (3x + 4) \text{ years}$$

$$\text{now } (3x + 4) = \frac{5}{2} \times (x + 4) \quad (1)$$

$$\Rightarrow 2(3x + 4) = 5(x + 4) \quad (1)$$

$$\Rightarrow 6x + 8 = 5x + 20 \quad (1)$$

$$\Rightarrow 6x - 5x = 20 - 8 \quad (1)$$

$$\Rightarrow x = 12 \quad (1)$$

$$\text{Present age of Manisha} = x = 12 \text{ Years} \quad (1)$$

$$\text{Present age of Manisha's mother} = 3x = 3 \times 12 = 36 \text{ Years}$$

Ans. 14. Given :- Principal (P) = Rs. 2000 (Marks-08)

Rate (r) = 20 % Per annum

Time (n) = $1\frac{1}{2}$ Years = $\frac{3}{2}$ Years

∴ Interest is calculated half yearly (1)

∴ Time = $\frac{3}{2} \times 2 = 3$ (Six months), Rate = 20% Per annum
= 10 % half yearly (1)

$$A = P \left(1 + \frac{r}{100}\right)^n \quad (1)$$

$$= 2000 \left(1 + \frac{10}{100}\right)^3 \quad (1)$$

$$= 2000 \left(\frac{11}{10}\right)^3 \quad (1)$$

$$= 2000 \times \frac{1331}{1000} \quad (1)$$

$$\text{Rs. 2662} \quad (1)$$

OR

Given :- Amount (A) = Rs. 1331 (1)

Rate (r) = 10 % Yearly

Time (n) = 3 years

Principal (P) = ? (1)

$$A = P \left(1 + \frac{r}{100}\right)^n \quad (1)$$

$$1331 = P \left(1 + \frac{10}{100}\right)^3 \quad (1)$$

$$1331 = P \left(\frac{11}{10}\right)^3 \quad (1)$$

$$1331 = P \times \left(\frac{1331}{1000}\right) \quad (1)$$

$$\frac{1331 \times 1000}{1331} = P \quad (1)$$

$$1 \times 1000 = P \quad (1)$$

$$P = \text{Rs } 1,000$$

Ans 15 . Given :- Length of the cuboidal Stepwell (l) = 8 m (Marks-10)

$$\text{Breadth of the cuboidal Stepwell (b)} = 6 \text{ m}$$

$$\text{Depth of the cuboidal Stepwell (h)} = 9 \text{ m} \quad (1)$$

$$\text{Height of water level in Stepwell} = 6 \text{ m}$$

$$\text{Capacity of the cuboidal Stepwell} = ?$$

$$\text{Volume of water in the cuboidal Stepwell} = ? \quad (1)$$

$$\text{Capacity of the cuboidal Stepwell} = \text{Volume of cuboid} \quad (1)$$

$$= l \times b \times h \quad (1)$$

$$= 8 \times 6 \times 9 \quad (1)$$

$$= 48 \times 9$$

$$= 432 \text{ cu.m} \quad (1)$$

Volume of water present in the cuboidal well

$$= l \times b \times h \quad (1)$$

$$= 8 \times 6 \times 6 \quad (1)$$

$$= 48 \times 6$$

$$= 288 \text{ cu.m} \quad (1)$$

- Ans (1) Volume of the well = 432 cu.m
 (2) Volume of the water present in the cuboidal well = 288 cu.m (1)

OR

Given : The volume of the wooden cuboid = 36 cm^3

Its length (ℓ) = 4 cm	}	(1)
Its breadth (b) = 3 cm	}	
Height (h) = ?	}	(1)
Total Surface area = ?	}	
Volume of wooden cuboid = 36 cm^3		(1)
$\ell \times b \times h = 36$		
$4 \times 3 \times h = 36$		(1)
$h = \frac{36}{4 \times 3}$		(1)
$h = 3 \text{ cm}$		

volume of total surface area = $2(lb + bh + hl)$	(1)
= $2(4 \times 3 + 3 \times 3 + 3 \times 4)$	(1)
= $2(12 + 9 + 12)$	(1)
= 2×33	
= 66 sq. cm	(1)

- Ans (1) Height of cuboid = 3cm
 (1) Total surface area of cuboid = 66 cm^2 (1)