Maths Practise Questions PDF Download in Telugu

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S1. Ans.(b)

Sol. $150 = \dfrac{P \times 4 \times 1}{100 \times 2}$

7500 Rs. = P

$\dfrac{20P}{100} - \dfrac{15P}{100} = 42$

$\dfrac{5P}{100} = 42$

P = 840 Rs.

Sol.

S2. Ans.(a)

Sol. $S.I = \dfrac{1}{6}P$

$\dfrac{1}{6}P = \dfrac{P \times R \times 3}{100}$

$\dfrac{50}{9} = R$

$R = 5\dfrac{5}{9}\%$

S4. Ans.(c)

Sol.

$\dfrac{1500 \times r_1 \times 3}{100} - \dfrac{1500 \times r_2 \times 3}{100} = 13.50$

$45(r_1 - r_2) = 13.50$

$r_1 - r_2 = 0.3$

S5. Ans.(a)

S3. Ans.(d)

8%   10%

9.2%

.8%   1.2%

8   :   12

2   :   3

Sol. Parts → 4000 Rs., 6000 Rs.

S6. Ans.(c)

Time = 2 years 3 months

$= 2\dfrac{3}{12} = 2\dfrac{1}{4}$

$= \dfrac{9}{4}$

$252 = \dfrac{1600 \times 9 \times r}{100 \times 4}$

Sol. r = 7%

S7. Ans.(b)

Principal → P

$S.I = \dfrac{4}{9}P$

Time = r

Rate ⇒ r

$\dfrac{4}{9}P = \dfrac{P \times r^2}{100}$

$r = \dfrac{20}{3}\% = 6\dfrac{2}{3}\%$

Sol.

S8. Ans.(c)

$80 = \dfrac{400 \times r \times 4}{100}$

r = 5%

$S.I = \dfrac{400 \times 7 \times 4}{100}$

= 112 Rs.

Amount = 400 + 112

Sol. = 512 Rs.

S9. Ans.(a)

$\dfrac{2}{5}P = \dfrac{P \times 10 \times r}{100}$

Sol. r = 4%

S10. Ans.(c)

$\dfrac{2}{5}P = \dfrac{P \times t \times 8}{100}$

Sol. t = 5 years

S11. Ans. (b);
Sol.

Let the four consecutive prime number are $a, b,$

Where $a < b < c < d$

$abc = 385$ and $bcd = 1001$

HCF = bc

385)1001 (2
      770
  231)385 (1
        231
    154)231 (1
          154
      77)154 (2

$bc = 77$

$bcd = 1001$

$d = \dfrac{bcd}{bc} = \dfrac{1001}{77} = 13$

S12. Ans. (a);
Sol.

L.C.M. of 9, 12 and 15 = 180 sec.

Req. answer $= \dfrac{36 \times 60}{180} + 1 = 13$

S13. Ans. (b);
Sol.

The wall clocks gains 6 min in 36 hours, while table watch loses 2 min. in 36 hour.

∴ difference of 8 min in $\frac{3}{2}$ days

∴ difference of 12 hours is in $= \frac{3}{2} \times \frac{1}{8} \times 12 \times$

S14. Ans. (d);
Sol.

Ratio of profit $= 5 : 2$

A's share $= \frac{5}{7} \times \frac{4x}{5} + \frac{x}{5} = \frac{27x}{35}$

B's share $= \frac{2}{7} \times \frac{4x}{5} = \frac{8x}{35}$

Diff. $= \frac{19x}{35} = 38000$

$x = 70000$

S15. Ans. (d);
Sol.

B's 3 days work $= \frac{3}{15} = \frac{1}{5}$

Remaining work $= 1 - \frac{1}{5} = \frac{4}{5}$

Time taken by A in finishing the remaining

S16. Ans. (c);
Sol.

Part of tank filled by both pipes in 1 hour $=$

Time taken to fill $\frac{2}{3}$ parts = 60 min

Time taken to fill $\frac{1}{2}$ part $= \frac{60 \times 3}{2} \times \frac{1}{2}$

$= 45$ min.

So, tank will be filled at 11 : 45 am

S17. Ans. (a);
Sol.

Time taken by pipe B $= 2x$ hours

Time taken by pipe A $= x$ hours

Time taken by pipe C $= \frac{2}{\frac{1}{2x} + \frac{1}{x}} = \frac{4x}{3}$ hours

$\frac{1}{x} + \frac{1}{2x} + \frac{3}{4x} = \frac{1}{\frac{6+\frac{40}{60}}{60}} = \frac{3}{20}$

$9 \times 20 = 4x \times 3$

$x = 15$ hours

S18. Ans. (d);
Sol.

Time taken by B in completing the work $= 12 \times$

(A + B)'s 1 days work $= \frac{1}{12} + \frac{2}{15} = \frac{13}{60}$

The work will be complete in $\frac{60}{13}$ days.

S19. Ans. (b);
Sol.

$(2M + 4B) \times 10 = (4M + 5B) \times 6$

$2M = 5B$

$5B = 2 \times 40$

$1B = \frac{2 \times 40}{5} = 16$

Req. ratio $= 40 : 16 = 5 : 2$

S20. Ans. (a);
Sol.

Marked price $= \frac{846 \times 100 \times 100}{94 \times 80} = 1125$

S21. Ans.(a)

C.P. of cycle = Rs. x

∴ $840 \times \frac{90}{100} = \frac{x \times 126}{100}$

$\Rightarrow x \times 126 = 840 \times 90$

$\Rightarrow x = \frac{840 \times 90}{126} = $ Rs. 600

Sol.

S22. Ans.(d)
Sol.
2/5 MP = CP
CP : MP= 2:5
Markup % = 3/2 ×100 = 150 %
P% = M% - D% - $\frac{M \times D}{100}$ = 150-10-15=125%

S23. Ans.(a)
Sol.
Amount lent at 8% rate of interest = Rs. x
∴ Amount lent at $\frac{4}{3}$ % rate of interest = Rs. (2

∴ S. I. = $\frac{Principal \times Rate \times Time}{100}$

∴ $\frac{x \times 8 \times 1}{100} + \frac{(20,000-x) \times \frac{4}{3} \times 1}{100}$
= 800
⇒ $\frac{2x}{25} + \frac{20,000-x}{75} = 800$
⇒ x = $\frac{40,000}{5}$ = Rs. 8000

S24. Ans.(b)
Sol.
In 20 litres of mixture,
Alcohol ⇒ (20 × 20)100 = 4 litres
Water ⇒ 20 − 4 = 16 litres
On adding 4 litres of water,
Quantity of water ⇒ 16 + 4 = 20 litres
Quantity of mixture = 24 litres
∴ Required per cent
= $\frac{4}{24} \times 100 = \frac{50}{3} = 16\frac{2}{3}$ %

S25. Ans.(a)
Sol.

Son : wife = 3 : 1 = 9 : 3
Wife : daughter = 3 : 1
∴ Son : wife : daughter
= 9 : 3 : 1
Sum of ratio = 9 + 3 + 1 = 13
If total wealth be Rs. x, then
Son's share – daughter's share
= Rs. 10,000
⇒ $\frac{9x}{13} - \frac{x}{13} = 10,000$
⇒ X = $\frac{13,00,00}{8}$ = Rs. 16250

S26. Ans.(d)
Sol.
Capacity of each container = x litre (let)
In first container,
Milk = $\frac{3x}{4}$ litres,
Water = $\frac{x}{4}$ litres
In second container,
Milk = $\frac{5x}{7}$ litres,
Water = $\frac{2x}{7}$ litres
On mixing both,
Quantity of milk = $\frac{3x}{4} + \frac{5x}{7}$
= $\frac{21x+20x}{28} = \frac{41x}{28}$ litres
Quantity of water = $\frac{x}{4} + \frac{2x}{7}$
= $\frac{7x+8x}{28}$ litres = $\frac{15x}{28}$ litres
∴ Required ratio
= $\frac{41x}{28} : \frac{15x}{28} = 41 : 15$

S27. Ans.(a)
Sol.

Number are x and y

∴ x + y = 25

x − y = 20

On adding,

2x = 45

$\Rightarrow x = \frac{45}{2} = 22.5$

From equation (i),

22.5 + y = 25

⇒ y = 25 − 22.5 = 2.5

∴ Required ratio = 22.5 : 2.5

= 9 : 1

S28. Ans.(a)

Sol.

Journey on foot = x km

Journey on cycle = (80 − x) km

$\therefore \frac{x}{8} + \frac{80-x}{16} = 7$

⇒ x = 112 − 80 = 32 km.

S29. Ans.(b)

Sol.

Total annual expenditure of the family

= Rs. (4 × 2570 + 3 × 2490 + 5 × 3030)

= Rs. (10280 + 7470 + 15150)

= Rs. 32900

Total income

= Rs. (32900 + 5320)

Rs. 38220

∴ Required average monthly

Income = $\frac{38220}{12}$ = Rs. 3185

S30. Ans.(d)

Sol.

Increase in ages of five members in 3 years

= (3 × 5) years = 15 years

As average age remains same,

∴ Required difference = 15 years

S31. Ans.(d)

$2x + \frac{1}{3x} = 5$

Multiply by $\frac{3}{2}$

$3x + \frac{1}{2x} = \frac{15}{2}$

Sol. $= \dfrac{\dfrac{6x^2 + 1 + 20x}{5x}}{2x\left(3x + \dfrac{1}{2x} + 10\right)} = \dfrac{5}{2\left(\dfrac{15}{2} + 10\right)} = \dfrac{5}{2 \times \dfrac{35}{2}} = \dfrac{5}{35} = \dfrac{1}{7}$

S32. Ans.(b)

a + b = 10, ab = 21

$(a - b)^2 = (a + b)^2 - 4ab$

$= (10)^2 - 4 \times 21$

= 100 − 84

Sol. = 16

S33. Ans.(c)

$(x - 4)(x^2 + 4x + 16)$

$= x^3 - P$

$x^3 - (4)^3 = x^3 - P$

$P = (4)^3$

Sol. = 64

S34. Ans.(b)

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

Sol. $= \dfrac{\dfrac{4x^2 + 10x + 1}{5x}}{x\left(4x + \dfrac{1}{x} + 10\right)} = \dfrac{5}{5 + 10} = \dfrac{5}{15} = \dfrac{1}{3}$

S35. Ans.(a)

Sol. $C + \dfrac{1}{C} = \sqrt{3}$

Cubing both sides

$C^3 + \dfrac{1}{C^3} + 3C \times \dfrac{1}{C}\left(C + \dfrac{1}{C}\right) = 3\sqrt{3}$

$C^3 + \dfrac{1}{C^3} + 3(\sqrt{3}) = 3\sqrt{3}$

$C^3 + \dfrac{1}{C^3} = 0$

S36. Ans.(b)

Sol.

$x = 222, y = 223, z = 225$

$x^3 + y^3 + z^3 - 3xyz$

$= \dfrac{1}{2}(x + y + z)[(x - y)^2 + (y - z)^2 + (z - x)^2]$

$= \dfrac{1}{2}(222 + 223 + 225)[(-1)^2 + (-2)^2 + (3)^2]$

$= \dfrac{1}{2}(670) \times [1 + 4 + 9]$

$= \dfrac{670}{2} \times 14 = 670 \times 7$

$= 4690$

S37. Ans.(c)

Sol.

If $a + b + c = 0$

Then,

$a^3 + b^3 + c^3 - 3abc = 0$

$\therefore a^3 + b^3 + c^3 = 3abc$

S38. Ans.(d)

Sol.

$\left(x^{1/3} + x^{-1/3}\right)\left(x^{2/3} - 1 + x^{-2/3}\right)$

$\Rightarrow x^{\frac{1}{3}+\frac{2}{3}} - x^{\frac{1}{3}} + x^{\frac{-2}{3}+\frac{1}{3}} + x^{\frac{-1}{3}+\frac{2}{3}} - x^{\frac{-1}{3}} + x^{\frac{-1}{3}}$

$\Rightarrow x - x^{\frac{1}{3}} + x^{-\frac{1}{3}} + x^{\frac{1}{3}} - x^{-\frac{1}{3}} + x^{-1}$

$= x + x^{-1}$

S39. Ans.(d)

Sol.

$\dfrac{1}{p} + \dfrac{1}{q} = \dfrac{1}{p + q}$

$\Rightarrow \dfrac{p + q}{pq} = \dfrac{1}{p + q}$

$(p + q)^2 = pq$

$p^2 + q^2 + 2pq = pq$

$p^2 + q^2 + pq = 0$

$p^3 - q^3 = (p - q)(p^2 + q^2 + pq)$

$= (p - q) \times 0$

$= 0$

S40. Ans.(c)

Sol.

$x = 93, y = 93, z = 94$

$x^2 - y^2 + 10xz + 10yz$

$= x^2 - y^2 + 10z(x + y)$

$= (x + y)(x - y) + 10z(x + y)$

$= (x + y)[x - y + 10z]$

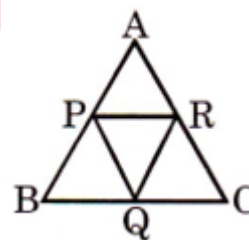$= (93 + 93)[0 + 10 \times 94]$

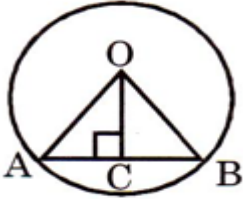$= 186 \times 940$

$= 174840$

S41. Ans.(a)

Sol.

ΔABC is equilateral, then ΔPQR will be also equilateral triangle.

S42. Ans.(b)

OA = OB = r Unit

$\angle AOC = 30°$

AC = CB

In $\triangle AOC$,

$\sin AOC = \dfrac{AC}{OA}$

$\sin 30° = \dfrac{AC}{r}$

$\Rightarrow \dfrac{1}{2} = \dfrac{AC}{r}$

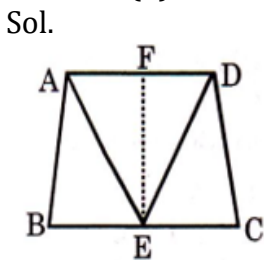$\therefore AC = \dfrac{r}{2}$

AB = $2 \times \dfrac{r}{2}$ = r Unit

Ratio = r : r = 1 : 1

Sol.

S43. Ans.(b)

$2^2 + 4^2 + 6^2 + \ldots\ldots + 20^2$

$= 2^2(1^2 + 2^2 + 3^2 + \ldots\ldots + 10^2)$

$= 4 \times 385$

$= 1540$

Sol.

S44. Ans.(d)

Sol.

Area of trapezium ABCD = $\dfrac{1}{2} \times EF \, (AD + BC)$

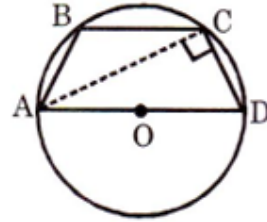Area of $\triangle AED = \dfrac{1}{2} \times EF \times AD$

$\therefore$ Required ratio = $\dfrac{1}{2} \times EF \, (AD + BC) : \dfrac{1}{2} \times EF \times AD$

= AD + BC : AD

$= \dfrac{\overline{AD} + \overline{BC}}{\overline{AD}}$

S45. Ans.(c)

Sol.

$\angle DAC = 55°$

$\angle ACD = 90°$ (Angle in semicircle is right angle.)

$\angle ADC = 180° - (90° + 55°) = 35°$

$\because \angle ABC + \angle ADC = 180°$

$\therefore \angle ABC = 180° - 35° = 145°$

S46. Ans.(a)

Volume of pyramid

$= \dfrac{1}{3} \times$ area of base × height

$\Rightarrow 500 = \dfrac{1}{3} \times 30 \times h$

$\therefore h = \dfrac{500}{10} = 50$ m

Sol.

S47. Ans.(a)

Sol.

T.S.A of prism = perimeter of base × height + 2 × area of base

$= \left\{5 + 12 + \left(\sqrt{5^2 + 12^2}\right)\right\} \times 10 + 2 \times \dfrac{1}{2} \times 5 \times 12$

$= \{5 + 12 + 13\} \times 10 + 60$

$= 300 + 60$

$= 360$ sq. m.

S48. Ans.(c)

$P(P^2 + 3P + 3)$

$= P^3 + 3P^2 + 3P$

$= P^3 + 3P^2 + 3P + 1 - 1$

$= (P + 1)^3 - 1$

$= (99 + 1)^3 - 1$

$= 1000000 - 1$

$= 999999$

Sol.

S49. Ans.(a)

$$\left(\sqrt{\sqrt{a} + \sqrt{b}} - \sqrt{\sqrt{b} - \sqrt{a}} \right)^{1/2}$$

$$\Rightarrow \left(\sqrt{\sqrt{64} + \sqrt{289}} - \sqrt{\sqrt{289} - \sqrt{64}} \right)^{1/2}$$

$$= \left(\sqrt{8 + 17} - \sqrt{17 - 8} \right)^{1/2}$$

$$= (5 - 3)^{1/2}$$

Sol. $= 2^{1/2}$

S50. Ans.(c)

Sol.

$$\frac{\cos^3 \theta + \sin^3 \theta}{\sin \theta + \cos \theta} + \frac{\cos^3 \theta - \sin^3 \theta}{\cos \theta - \sin \theta}$$

$$= \frac{(\cos \theta + \sin \theta)(\cos^2 \theta + \sin^2 \theta - \cos \theta . \sin \theta)}{(\sin \theta + \cos \theta)}$$

$$+ \frac{(\cos \theta - \sin \theta)(\cos^2 \theta + \sin^2 \theta + \cos \theta . \sin \theta)}{(\cos \theta - \sin \theta)}$$

$$= 1 - \cos \theta . \sin \theta + 1 + \cos \theta . \sin \theta$$

$$= 2$$

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