Solution

ADMISSION TEST

Class 09 - Admission Test

1.

(c) 0.2 m

Explanation:

Volume of water = 160 m^3

Ares of rectangular field = 800 m^3

Let h be the height of water level in the field.

Now, volume of water = volume of cuboid formed on the field by water.

160 = Area of base$\times$ height

= 800 $\times$ h

h = $\frac{160}{800}$ = 0.2

So, required height = 0.2 m

2.

(c) Throwing a stone from the roof of a building

Explanation:

Tossing a coin, rolling a die and choosing a card from a deck of 52 cards are the random experiments, as we don't have an idea about the output of these experiments. But if we throw a stone from the roof of a building, we know the output, it will fall on the ground.

3.

(d) Surface area

Explanation:

The surface area of a three-dimensional figure is the sum of the areas of all its faces.

4.

(b) 12 yrs

Explanation:

Reasoning: If x be the sum it becomes 2x in four years at a certain rate, say r%

$\therefore$ 2x = $x\left(1+\frac{r}{100}\right)^4$ or

2 = $\left(1+\frac{r}{100}\right)^4$

Cube both sides

$\therefore 2^3 = \left(1+\frac{r}{100}\right)^{3\times4}$

or 8 = $\left(1+\frac{r}{100}\right)^{12}$

or 8x = x$\left(1+\frac{r}{100}\right)^{12}$

Hence, the required number of years = 12 years

5.

(b) none of these

Explanation:

Ratio of water and milk are 2 : 7

Total mixture is 729 ml

$\therefore$ Quantity of milk

= $\left[729\times\frac{7}{9}\right]$ = 567ml

Quantity of water = [729 - 567] = 162 m

Now, $\frac{567}{162+x} = \frac{7}{3}$

567 × 3 = 7[162 + x]

1701 = 1134 + 7x ⇒ x = 81

6. **(a)** 64

Explanation:

8^2

= 8 x 8

= 64

7.

(b) 1 : 8

Explanation:

250 ml : 2L = 2000 ml

250 : 2000 = 1 : 8

8. **(a)** 48

Explanation:

We have, 12.5% of 192 = 50% of x

$\Rightarrow \frac{12.5}{100} \times 192 = \frac{50}{100} \times x$ ⇒ x = 24 × 2 ⇒ x = 48

9.

(d) 48

Explanation:

Volume of the rectangular container = (12 cm) × (8 cm) × (4 cm)

= 384 cm^3

Volume of cube = $(2\ cm)^3$

= 8 cm^3

Number of ice cubes = $\frac{\text{Volume of Container}}{\text{Volume of 1 ice cube}}$

= $\frac{384\ cm^3}{8\ cm^3}$ = 48

10. **(a)** 1 : 4

Explanation:

Volume of the original cube having side of length 4 cm = $(4)^3$ = 64 cm^3

[∵ volume of cube with side a = a^3]

Volume of the cut-out cubes with side of length 1 cm = 1 cm^3

∴ Number of cut-out cubes = $\frac{volume\ of\ the\ original\ cube}{volume\ of\ a\ smaller\ cube} = \frac{64}{1}$ = 64

Now, the surface area of cut-out cubes = 64 × 6 × $(1)^2$ cm^2 [∵ surface area of cube with side a = 6 a^2]

and surface area of the original cube = 6 × 4^2 cm^2

∴ The required ratio of surface areas of the original cube and cut-out cubes = $\frac{6\times4^2}{64\times6}$ = 1 : 4

11.

(b) 12%

Explanation:

Let the rate of GST be x%,

According to the question,

∴ $1200 + 1200 \times \frac{x}{100}$ = 1344

⇒ 12x = 44

⇒ x = $\frac{144}{12}$ = 12%

12. **(a)** 6

Explanation:

$6 \times 6 = 36 \therefore A = 6.$

13. **(a)** A = 2, B = 5, C = 1

Explanation:

$$\begin{array}{r} 2\ 5 \\ \times\ \ 5 \\ \hline 125\ \text{True} \end{array}$$

So, A = 2, B = 5, C = 1

14.

(d) -1

Explanation:

for y = 1,

$(-y)^4 \times (-y)^5$

$(-1)^4 \times (-1)^5$

$-1 \times -1 \times -1 \times -1 \times -1 \times -1 \times -1 \times -1 \times -1 = -1$

15.

(d) Associativity of multiplication

Explanation:

Associativity of multiplication

16.

(b) 2

Explanation:

P = ₹ 30000, r = 7% P.a., C.I = ₹ 4347,

n = ?

$\Rightarrow$ Amount = ₹ 30000 + ₹ 4347 = ₹ 34347

$\therefore 34347 = 30000\left(1 + \frac{7}{100}\right)^n$

$\Rightarrow \left(\frac{107}{100}\right)^n = \frac{34347}{30000} = \frac{11449}{10000}$

$\Rightarrow \left(\frac{107}{100}\right)^n = \left(\frac{107}{100}\right)^2 \Rightarrow n = 2$

17.

(c) $\frac{-125}{462}$

Explanation:

$\frac{3}{7} + (-\frac{6}{11}) + (-\frac{8}{21}) + \frac{5}{22}$

$=[(\frac{3}{7})+(-\frac{8}{21})] + [(-\frac{6}{11}) + \frac{5}{22}]$

$=[\frac{3\times3-1\times8}{21}] +[\frac{-6\times2+1\times5}{22}]$

$=[\frac{9-8}{21}]+ [\frac{-12+5}{22}]$

$=\frac{1}{21}-\frac{7}{22}$

$=[\frac{1\times22-7\times21}{462}]$

$=[\frac{22-147}{462}]$

$= \frac{-125}{462}$

18. **(a)** $\frac{3}{8}$

Explanation:

To find a rational number between $\frac{1}{4}$ and $\frac{1}{2}$

Add both numbers and divide it by 2.

$\frac{1}{4} + \frac{1}{2} = \frac{1+2}{4} = \frac{3}{4}$

Now divide it by 2, $\frac{3}{4\times2} = \frac{3}{8}$

So, rational number between $\frac{1}{4}$ and $\frac{1}{2}$ is $\frac{3}{8}$

19.

(c) $-\frac{41}{12}$

Explanation:

$[\frac{3}{4} + (\frac{-5}{2}) + (\frac{-8}{3})] + \frac{5}{5}$

$= [\frac{3\times3+(-5)\times6+(-8)\times4}{12}] + 1$

$= [\frac{9-30-32}{12}] + 1$

$= \frac{-53}{12} + 1$

$= \frac{-53+12}{12}$

$= \frac{-41}{12}$

20.

(d) 216 cm^2

Explanation:

216 cm^2

21.

(d) Rs 17,250

Explanation:

Price of the Washing Machine = Rs.15,000

Sale tax $= ₹\frac{15000\times15}{100}$

= Rs 2,250

Amount Arjun will have to pay = Rs (15,000 + 2,250)

= Rs.17,250

22.

(b) Rs 40

Explanation:

Discount = Rs 540 - 500 (Marked price - Sales price)

= Rs 40

23. **(a)** 6.4×10^{-5}

Explanation:

We have, $0.000064 = 0.64 \times 10^{-4}$

$= 6.4 \times 10^{-5}$

Therefore, standard form of 0.000064 is 6.4×10^{-5}

24.

(b) Rs 12,500

Explanation:

let the price before VAT = Rs 100

VAT = 8%

Price after VAT = 100 + 8

= Rs 108

If the price after VAT is Rs 108 then price before VAT is = Rs 100

If the price after VAT is Rs 13,500 then price before VAT is = $\frac{100}{108} \times 13500$

= Rs 12,500

25.

(b) 2^{11}

Explanation:

$2^5 \div 2^{-6} = 2^5 \times 2^6$

$2^{5+6} = 2^{11}$

26.

(b) pie chart

Explanation:

Data represented using circles is known as pie chart.

27. **(a)** $11\frac{1}{9}\%$

Explanation:

S.I. for 2 years = ₹2880

S.I. for 1 year = ₹1440

Difference between C.I. & S.I. for

2 years = 160

Rate = $\frac{160}{1440} \times 100$

= $\frac{100}{9}$

= $11\frac{1}{9}\%$

28.

(d) 10

Explanation:

$\frac{2x}{3} + 1 = \frac{7x}{15} + 3$

by transposing

or, $\frac{2x}{3}$ - $\frac{7x}{15}$ = 3 - 1

or, $\frac{10x-7x}{15}$ = 2

or, 3x = 30

or, x = 10

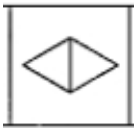
29.

(b) Figure (2)

Explanation:

Except figure (2), in all other figures the size of all the three shapes are different. But in figure (2) all the three circles are of same size.

30.

(d) 

Explanation:

Both the half designs joined together to form a single design.

31.

(d) 32 m, South

Explanation:

32 m, South

32.

(c) L

Explanation:

L

33. **(a)** 

Explanation: