Q1: Evaluate $\sqrt{12^2+5^2}-\sqrt{8^2+6^2}$

A) 3 **B) 4** **C) 6** **D) 8**

Solution:

$$\sqrt{12^2+5^2}-\sqrt{8^2+6^2}=\sqrt{144+25}-\sqrt{64+36}$$
$$=\sqrt{169}-\sqrt{100}$$
$$=13-10$$
$$=\boxed{3}$$

Answer: A

Q2: Evaluate $\frac{1}{\sqrt{0.01}}-\frac{1}{\sqrt{0.25}}$

A) 4 **B) 6** **C) 7** **D) 8**

Solution:

$$\frac{1}{\sqrt{0.01}}-\frac{1}{\sqrt{0.25}}=\frac{1}{\sqrt{\frac{1}{100}}}-\frac{1}{\sqrt{\frac{25}{100}}}$$
$$=\frac{1}{\frac{1}{10}}-\frac{1}{\frac{5}{10}}$$
$$=1\times\frac{10}{1}-1\times\frac{10}{5}$$
$$=10-2$$
$$=8$$

Answer: D

Q3: $(20+40\div 8)+(80+15\times 6)=?$

A) 275 **B) 315** **C) 225** **D) 195**

Solution:

$$(20+40\div 8)+(80+15\times 6)=(20+5)+(80+90)$$
$$=25+170$$
$$=195$$

Answer: D

Q4: Find x if $\frac{1}{x}+\frac{2}{x}+\frac{3}{x}+\frac{4}{x}=\frac{20}{6}$

A) 1 **B) 2** **C) 3** **D) 4**

Solution:

$$\frac{1}{x}+\frac{2}{x}+\frac{3}{x}+\frac{4}{x}=\frac{20}{6}$$
$$\frac{1+2+3+4}{x}=\frac{20}{6}$$
$$\frac{\cancel{10}^{1}}{x}=\frac{\cancel{20}^{2}}{6}$$
$$\frac{1}{x}=\frac{2}{6}$$
$$x=3$$

Answer: C

Q5: It is given that $\frac{a}{2}=\frac{b}{3}=\frac{c}{4}=3$. What is the value of $2a+3b+4c$?

A) 87 **B)** 65 **C)** 27 **D)** 51

Solution:

$$\frac{a}{2}=\frac{b}{3}=\frac{c}{4}=3\Leftrightarrow a=6,b=9,c=12$$
$$2a+3b+4c=2\times 6+3\times 9+4\times 12$$
$$=12+27+48=87$$

Answer: A

Q6: What least number must be added to 1056, so that the sum is completely divisible by 23?

A) 2 B) 3 C) 4 D) 5

Solution:

We should find the remainder when 1056 is divided by 23.
Remainder is 21. If we add 2 in 1056, 1058 will be completely divisible by 23.

Answer: A

Q7: What percentages of numbers from 1 to 70 have 1 or 9 in the unit's digit?

A) 18% B) 20% C) 24% D) 27%

Solution:

The numbers from 1 to 70 those have 1 in units places are 1,11,21,31,41,51,61.

The numbers from 1 to 70 those have 9 in units places are 9,19,29,39,49,59,69

There are total 14 numbers out of 70 numbers.

Percentage will be $\frac{14}{70}\times 100\% = 20\%$

Answer: B

Q8: The set A has 6 elements and the set B has 4 elements. What is the least number of subsets of $A\cup B$ **?**

A) 6 B) 10 C) 32 D) 64

Solution:

$A\cup B$ **has the least number of elements if A or B is a subset of the other one. B has the less number of elements, so B can be a subset of A. That means** $A\cup B = A$
$A\cup B$ **has 6 as the least number of elements.**
So the number of subsets will be $2^6 = 64$**.**

Answer: D

Q9: Simplify $\left(\frac{1}{a+b}+\frac{1}{a-b}\right).\left(a^2-b^2\right)$

A) $-2b$ **B)** $-2a$ **C)** $2a$ **D)** $2b$

Solution:

$$\Rightarrow \left(\frac{1}{a+b}+\frac{1}{a-b}\right).\left(a^2-b^2\right)$$

$$\Rightarrow \left(\frac{\cancel{a-b}+a+\cancel{b}}{(a+b)(a-b)}\right).\left(a^2-b^2\right)$$

$$\Rightarrow \left(\frac{2a}{\cancel{a^2-b^2}}\right).\left(\cancel{a^2-b^2}\right)$$

$$\Rightarrow 2a$$

Answer: C

Q10: Evaluate $\frac{\left(\sqrt{2}-\sqrt{3}\right)^2+\sqrt{24}}{\sqrt{25}}$

A) 0 **B)** 1 **C)** $2\sqrt{5}$ **D)** $4\sqrt{5}$

Solution:

$$\frac{\left(\sqrt{2}-\sqrt{3}\right)^2+\sqrt{24}}{\sqrt{25}} \quad Apply\left(a+b\right)^2 = a^2+2ab+b^2$$

$$\frac{\left(\sqrt{2}\right)^2-2\sqrt{2}\sqrt{3}+\left(\sqrt{3}\right)^2+4\sqrt{6}}{5}$$

$$\frac{2-\cancel{4\sqrt{6}}+3+\cancel{4\sqrt{6}}}{5}=\frac{5}{5}=1$$

Answer: B

Q11: If $A \cup B = \{a,b,c,d,e\}$ and $B - A = \{c,d\}$, then what is the number of elements of set A ?

A) 2 **B) 3** **C) 4** **D) 5**

Solution:

$A \cup B = \{a,b,c,d,e\}$ and $B - A = \{c,d\}$

The elements of $A = \{a,b,e\}$

There are 3 elements in set A

Answer: B

Q12: It is given that $\frac{x}{2} = \frac{y}{3}$ and $y = 36$, then what is the value of x ?

A) 9 **B) 18** **C) 24** **D) 32**

Solution:

$$\Rightarrow \frac{x}{2} = \frac{y}{3}$$

$$\Rightarrow \frac{x}{2} = \frac{36}{3} \quad \therefore y = 36$$

$$\Rightarrow x = 24$$

Answer: C

Q13: If $5 - \frac{1}{1-\frac{1}{2}} = a$, then what is a ?

A) 2 **B) 3** **C) 4** **D) 5**

Solution:

$$5 - \frac{1}{1-\frac{1}{2}} = a \Rightarrow 5 - \frac{1}{\frac{1}{2}} = a \Rightarrow 5 - 2 = a \Rightarrow a = 3$$

$a = 3$

Answer: B

Q14: Evaluate $\dfrac{\left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right)\ldots\left(1+\frac{1}{18}\right)}{\left(2-\frac{1}{2}\right)\left(2-\frac{2}{3}\right)\ldots\left(2-\frac{17}{18}\right)}$

A) $\frac{19}{18}$ **B)** $\frac{2}{19}$ **C) 1** **D)** $\frac{19}{2}$

Solution:

$$\frac{\left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right)\ldots\left(1+\frac{1}{18}\right)}{\left(2-\frac{1}{2}\right)\left(2-\frac{2}{3}\right)\ldots\left(2-\frac{17}{18}\right)} = \frac{\left(\frac{3}{2}\right)\left(\frac{4}{3}\right)\ldots\left(\frac{19}{18}\right)}{\left(\frac{3}{2}\right)\left(\frac{4}{3}\right)\ldots\left(\frac{19}{18}\right)}$$

$$= \frac{\frac{19}{2}}{\frac{19}{2}} = 1$$

Answer: C

Q15: Which of the following is correct?

A) $\frac{11}{7} < \frac{23}{16} < \frac{33}{25}$ **B)** $\frac{11}{7} < \frac{33}{25} < \frac{23}{16}$

C) $\frac{23}{16} < \frac{11}{7} < \frac{33}{25}$ **D)** $\frac{33}{25} < \frac{23}{16} < \frac{11}{7}$

Solution:

$$\left.\begin{aligned} \frac{11}{7} &= 1.57 \\ \frac{23}{16} &= 1.43 \\ \frac{33}{25} &= 1.32 \end{aligned}\right\} 1.32 < 1.43 < 1.57 \; or \; \frac{33}{25} < \frac{23}{16} < \frac{11}{7}$$

Answer: D

Q16: If $2 + \frac{6}{3+\frac{12}{x}} = 3$, then what is x ?

A) 6 **B) 4** **C) 3** **D) 2**

Solution:

$$2+\frac{6}{3+\frac{12}{x}}=3$$

$$\frac{6}{3+\frac{12}{x}}=1\Rightarrow 3+\frac{12}{x}=6\Rightarrow \frac{12}{x}=3\Rightarrow x=4$$

Answer: B

Q17: What will be the percentage increase in the area of a rectangle, if each of its sides is increased by 20%?

A) 52% **B) 48%** **C) 44%** **D) 42%**

Solution:

If a side of square is $10x$ then area will be $100x^2$.

After increasing its one side by 20%, the new measure of the side will be $12x$ and the area will be $144x^2$. As you see above the area increase 44 out of 100. That makes 44%

Answer: C

Q18: If $a=\frac{\sqrt{0.16}+\sqrt{2.25}}{\sqrt{0.25}+\sqrt{1.44}}+\frac{\sqrt{1.21}}{\sqrt{2.89}}$, then what is a?

A) $\frac{17}{5}$ **B) $\frac{13}{5}$** **C) $\frac{30}{17}$** **D) $\frac{15}{17}$**

Solution:

$$a=\frac{\sqrt{0.16}+\sqrt{2.25}}{\sqrt{0.25}+\sqrt{1.44}}+\frac{\sqrt{1.21}}{\sqrt{2.89}}$$

$$a=\frac{0.4+1.5}{0.5+1.2}+\frac{1.1}{1.7}$$

$$a=\frac{1.9}{1.7}+\frac{1.5}{1.7}\Rightarrow\frac{3.0}{1.7}=\frac{30}{17}$$

Answer: C

Q19: If $\frac{x}{1+\frac{3}{2}}=\frac{y}{2-\frac{1}{3+\frac{1}{2}}}$, then what is $\frac{x}{y}$?

A) $\frac{35}{24}$ **B) $\frac{17}{21}$** **C) $\frac{15}{19}$** **D) $\frac{13}{7}$**

Solution:

$$\Rightarrow\frac{x}{1+\frac{3}{2}}=\frac{y}{2-\frac{1}{3+\frac{1}{2}}}\Rightarrow\frac{x}{\frac{5}{2}}=\frac{y}{2-\frac{1}{\frac{7}{2}}}\Rightarrow\frac{2x}{5}=\frac{y}{2-\frac{2}{7}}$$

$$\Rightarrow\frac{2x}{5}=\frac{y}{\frac{12}{7}}=\frac{2x}{5}=\frac{7y}{12}\Rightarrow 24x=35y$$

$$\Rightarrow\frac{x}{y}=\frac{35}{24}$$

Answer: C

Q20: A fort had provision of food for 150 men for 45 days. After 10 days, 25 men left the fort. What is the number of days for which the remaining food will last?

A) 36 **B) 40** **C) 42** **D) 44**

Solution:

After 10 days : 150 men had food for 35 days.

Suppose 125 men had food for x days.

Now, Less men, More days (Indirect Proportion)

$$\frac{125}{150}=\frac{35}{x}\Rightarrow 125x=35\times 150$$

$$x=\frac{35\times 150}{125}\Rightarrow x=42$$

Answer: C

Q21: In a class of 25 boys, 17 boys play football, 12 boys play basketball and 5 boys play both games. How many boys do not play any game?

A) 3 B) 2 C) 1 D) 0

Solution:

Lest denote F for football players and B for basketball players. Then,

$$n(F \cup B) = n(F) + n(B) - n(F \cap B)$$

$$n(F \cup B) = 17 + 12 - 5 = 24$$

$n(F \cup B) = 24$ **but there are 25 players, that means one of the players does not play any game**

Answer: C

Q22: A rope is divided in three parts with a proportion of by 2, 3 and 5 respectively. What is the difference between the shortest part and the longest part in meters if the rope is 180 meters long?

A) 54 B) 52 C) 48 D) 36

Solution:

A rope is divided in three parts with a proportion of by 2, 3 and 5 respectively. If the first part is 2x, then second and third parts will be 3x and 5x respectively.

$$2x + 3x + 5x = 180$$

$$10x = 180$$

$$x = 18$$

If $x = 18$ **then parts will be 36, 54, 90 respectively. So the difference between the shortest part and the longest part is 90-36=54**

Answer: A

Q23: A train, running at the speed of 60 km/hr., crosses a bridge in 9 seconds. What is the length of the train?

A) 120 meters B) 150 meters
C) 180 meters D) 210 meters

Solution:

Speed= $\left(60 \times \frac{5}{18}\right) m/\sec = \left(\frac{50}{3}\right) m/\sec$

Length of the train=(SpeedxTime)=

$$\left(\frac{50}{3} \times 9\right) m = 150m$$

Answer: B

Q24: Excluding stoppages, the speed of a bus is 54 km/h and including stoppages, it is 45 km/h. For how many minutes does the bus stop per hour?

A) 10 min B) 8 min
C) 12 min D) 14 min

Solution:

Due to stoppages, it covers 9 km less.

Time taken to cover $9km = \left(\frac{9}{54} \times 60\right) \min = 10 \min$

Answer: A

Q25: Simplify $\frac{1}{1+\frac{a}{b+c}} + \frac{1}{1+\frac{b}{a+c}} + \frac{1}{1+\frac{c}{a+b}}$

A) $a+b+c$ **B)** 2 **C)** abc **D)** 1

Solution:

$$\Rightarrow \frac{1}{1+\frac{a}{b+c}} + \frac{1}{1+\frac{b}{a+c}} + \frac{1}{1+\frac{c}{a+b}}$$

$$\Rightarrow \frac{1}{\frac{a+b+c}{b+c}} + \frac{1}{\frac{a+b+c}{a+c}} + \frac{1}{\frac{a+b+c}{a+b}}$$

$$\Rightarrow \frac{b+c}{a+b+c} + \frac{a+c}{a+b+c} + \frac{a+b}{a+b+c}$$

$$\Rightarrow \frac{2a+2b+2c}{a+b+c} = \frac{2\cancel{(a+b+c)}}{\cancel{a+b+c}} = 2$$

Answer: B

Q26: In the first 10 overs of a cricket match, the run rate was only 3.2 per over. What should be the run rate in the remaining 40 overs to reach the target of 282 runs?

A) 5.25 B) 5.45 C) 6.25 D) 6.75

Solution:

Required run rate= $\left(\frac{282-(3.2\times 10)}{40}\right)=\frac{250}{40}=6.25$

Answer: C

Q27: In a pond, there are 400 fish. 30% of them are guppies, 25% of them are mollies and the rest are swordtails. How many more swordtails as compared to guppies are there?

A) 40 B) 50 C) 60 D) 80

Solution:

The number of guppies: $400\times\frac{30}{100}=120$

The number of mollies: $400\times\frac{25}{100}=100$

The number of guppies: $400-(120+100)=180$

As you see above the number of swordtails is 60 more than the number of guppies

Answer: C

Q28: 39 persons can repair a road in 12 days, working 5 hours a day. In how many days will 30 persons, working 6 hours a day, complete the work?

A) 10 B) 12 C) 13 D) 15

Solution:

In this question there is inverse proportion.

$39\times 12\times 5=x\times 30\times 6$

$x=13$

Answer: C

Q29: The sum of ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?

A) 4 **B)** 6 **C)** 7 **D)** 8

Solution:

The ages: x,x+3,x+6,x+9,x+12

Sum: 5x+30=50

X=4

Answer: A

Q30: The number n^2 **is a perfect square. What is the next perfect square bigger than** n^2 **?**

A) n^2+1 **B)** $2\sqrt{n}+1$

C) $n^2+2\sqrt{n}+1$ **D)** n^2+2n+1

Solution:

The number n^2 **is a perfect square. n is the whole square of** n**. The next perfect number is** $(n+1)^2$

$(n+1)^2=n^2+2n+1$

Answer: D

Q31: A student mistakenly multiplied a number by $\frac{3}{5}$ **instead of** $\frac{5}{3}$**. What is the percentage error in the calculation?**

A) 44% B) 54% C) 64% D) 74%

Solution:

Suppose our number is 100.

The multiplication by mistake is $60\frac{3}{5}=36$

The correct multiplication is $60 \times \frac{5}{3} = 100$

The percentage of error is 100-36=64
Note: 64 is out of 100

Answer: C

Q32: The average weight of 8 persons increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?

A) 70 kg B) 80 kg C) 75 kg D) 85 kg

Solution:
When a new person came in place of one, the weight of each increased by 2.5 kg. That is $8 \times 2.5 = 20$ kg in total (8 persons). That means the weight of new person is (65+20) kg or 85 kg.

Answer: D

Q33: $\dfrac{\frac{1}{2} \div \frac{1}{3} \times \frac{4}{3} - \frac{1}{4}}{\frac{1}{2} \times \left[\left(\frac{1}{2} \times \frac{1}{3}\right) \div \frac{1}{4} + \frac{3}{4}\right]} = ?$

A) $\frac{17}{48}$ **B)** $\frac{94}{24}$ **C)** $2\frac{14}{17}$ **D)** $\frac{42}{17}$

Solution:

$$\frac{\frac{1}{2} \div \frac{1}{3} \times \frac{4}{3} - \frac{1}{4}}{\frac{1}{2} \times \left[\left(\frac{1}{2} \times \frac{1}{3}\right) \div \frac{1}{4} + \frac{3}{4}\right]} = \frac{\frac{1}{2} \times \frac{\cancel{3}}{1} \times \frac{\cancel{4}}{\cancel{3}} - \frac{1}{\cancel{4}}}{\frac{1}{2} \times \left[\left(\frac{1}{\cancel{6}^{3}}\right) \times \frac{\cancel{4}^{2}}{1} + \frac{3}{4}\right]}$$

$$\frac{2 - \frac{1}{4}}{\frac{1}{2} \times \left[\frac{2}{3} + \frac{3}{4}\right]} = \frac{\frac{7}{4}}{\frac{1}{2} \times \frac{8+9}{12}} = \frac{\frac{7}{4}}{\frac{17}{24}} = \frac{7}{\cancel{4}^{1}} \times \frac{\cancel{24}^{6}}{17} = \frac{42}{17}$$

Answer: D

Q34: The product of first 15 prime numbers is equal to x. Which of the following number is the digit in unit place?

A) 0 B) 2 C) 3 D) 5

Solution:
In first 15 prime numbers there 2 and 5. When 2 is multiplied by 5 makes 10. That means 10 is a factor of the product. That shows that the digit in unit place is 0.

Answer: A

$$A = 2014 - \frac{1}{2013}$$

Q35: If $B = 2014 + \frac{1}{2013}$**, then find the**

$$C = 2013 + \frac{1}{2013}$$

ascending order of A, B and C.

A) A<B<C B) A<C<B
C) C<A<B D) B<A<C

Solution:

$$A = 2014 - \frac{1}{2013}$$

$$B = 2014 + \frac{1}{2013}$$

$$C = 2013 + \frac{1}{2013}$$

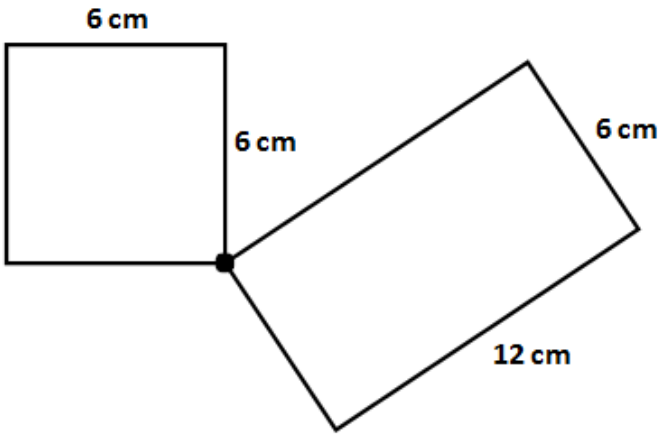
Comparing A and B, easily we can see that A<B.
Comparing B and C, easily we can see that C<B

So B is the greatest one.
Comparing A and C, easily we can see that C<A

So C<A<B ($\frac{1}{2013}$ very small number)

Answer: C

Q36: Two ants started to walk from point A. One ant went on square while other one went on rectangle. How long one ant can walk until they meet again?



A) 72 **B) 48** **C) 36** **D) 24**

Solution:
Till they meet again, they will have travel the same distance. The perimeter of square is 24 cm and the perimeter of rectangle is 36 cm. They can not meet when they complete one round. They need more rounds but equal distance. So we should take LCM. The LCM of 24 and 36 is 72. Each should walk 72 cm so that they can meet again

Answer: A

Q37: If $\begin{pmatrix} \frac{1}{a}+\frac{1}{b}=\frac{1}{3} \\ \frac{1}{b}+\frac{1}{c}=\frac{5}{6} \\ \frac{1}{c}+\frac{1}{a}=\frac{7}{12} \end{pmatrix}$ **then,** $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}=?$

A) $\frac{7}{8}$ **B)** $\frac{3}{4}$ **C)** $\frac{5}{4}$ **D)** $\frac{1}{8}$

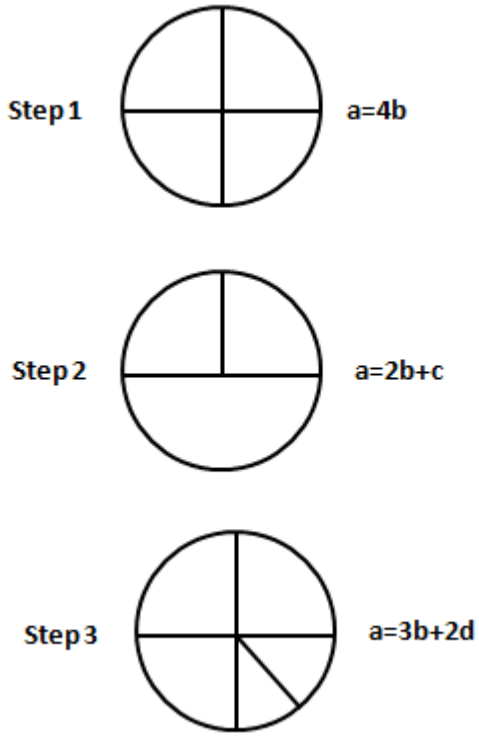
Solution:

$$\begin{pmatrix} \frac{1}{a}+\frac{1}{b}=\frac{1}{3} \\ \frac{1}{b}+\frac{1}{c}=\frac{5}{6} \\ \frac{1}{c}+\frac{1}{a}=\frac{7}{12} \end{pmatrix} = \frac{1}{a}+\frac{1}{b}+\frac{1}{b}+\frac{1}{c}+\frac{1}{c}+\frac{1}{a} = \frac{1}{3}+\frac{5}{6}+\frac{7}{12}$$

$$= \frac{2}{a}+\frac{2}{b}+\frac{2}{c} = \frac{4+10+7}{12} = \frac{\cancel{21}^{7}}{\cancel{12}^{4}} = \frac{7}{4} \Rightarrow \frac{1}{a}+\frac{1}{b}+\frac{1}{c} = \frac{7}{8}$$

Answer: A

Q38: In each step, the shapes are denoted with letters according to a rule.



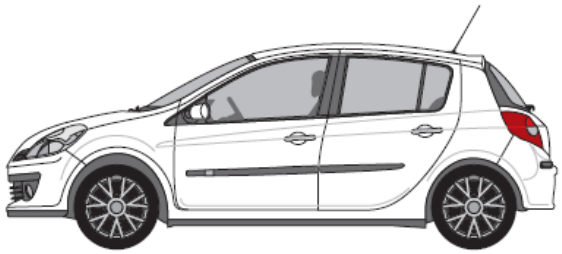
Which of the following is wrong?

A) $a = b + 4d$ **B)** $a = 2c$
C) $a = c + 4d$ **D)** $a = 8d$

Solution:
As you see above a is the whole part. if a=4b, then b is a quarter. If a=2c, then c is half of the circle. If a=3b+2d, then the smallest part in step 3 is d. Now, we should check all the options.
A) a=b+4d; this is wrong. b+4d is not equal to a. because b is a quarter and 4d is two quarters. That makes 3 quarters but a is 4 quarters.

Answer: A

Q39: Ali decided to buy a car by paying $16000 in advance and continue with installments of 12 months at $750 per month. After some time he changed his mind and decided to buy the same car without installment for $20000. What percent of money did Ali save by changing his mind?



A) 24 B) 15 C) 16 D) 20

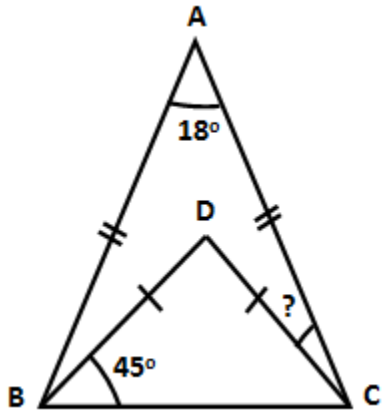
Solution:
Ali's first decision: $\$16000+12\times\$750=\$25000$
Ali's second decision: $\$20000$
That means Ali save $\$25000-\$20000=\$5000$
What percent of $\$25000$ is $\$5000$?

$$\$\cancel{25}^{5}\,\cancel{000}\,\frac{x}{100}=\$\cancel{5}^{1}\,\cancel{000}$$

$$x=\frac{100}{5}=20\%$$

Answer: D

Q40: ΔABC and ΔBDC are two isosceles triangles. If $|AD|=|BC|$ and $|BD|=|DC|$, then find the value of x.



A) 45° B) 44° C) 32° D) 36°

Solution:
As $\triangle ABC$ and $\triangle DBC$ are isosceles triangles, two indicated angles of each triangle are equal in measure.

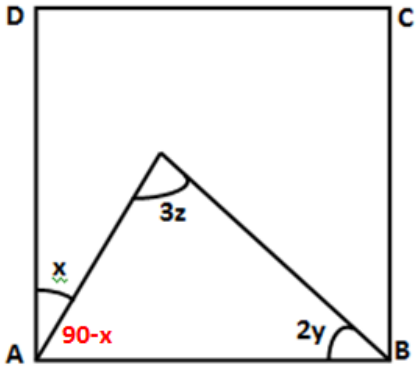
$m\angle BCD=45°$ (isosceles triangle)

$$m\angle BCA=\frac{180°-18°}{2}=81°$$ (isosceles triangle)

So $m\angle DCA=m\angle BCA-m\angle BCD=81°-45°$
$m\angle DCA=36°$

Answer: D

Q41: $ABCD$ is a square. $\angle DAE=x$, $\angle ABE=2y$ and $\angle AEB=3z$. Find the angle z in terms of x and y



A) $\frac{90+x-2y}{2}$ B) $\frac{90+x-2y}{3}$

C) $\frac{90+x+2y}{3}$ D) $\frac{90-x-3y}{2}$

Solution:

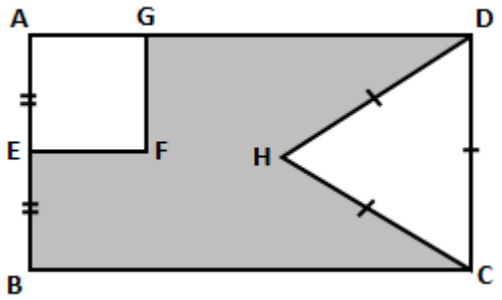
Sum of measures of interior angels of a triangle is 180°.

$$90° - x + 3z + 2y = 180°$$
$$3z = 90° + x - 2y$$
$$z = \frac{90° + x - 2y}{3}$$

Answer:B

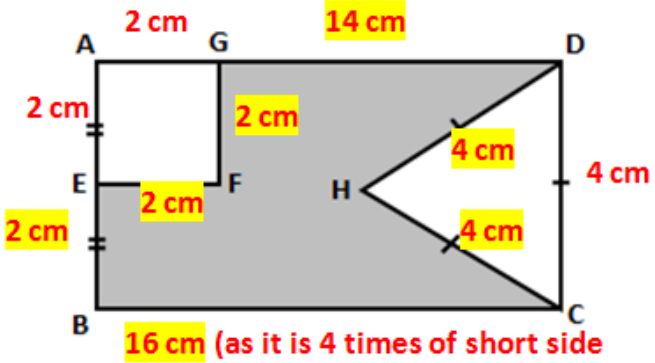
Q42: ABCD is a rectangle, AEFG is a square, DHC is an equilateral triangle, $|AE| = |EB|$ and $|DC| = 4\,cm$

If the long side of rectangle is 4 times of short side, what is the perimeter of shaded region?



A) 44 B) 28 C) 34 D) 42

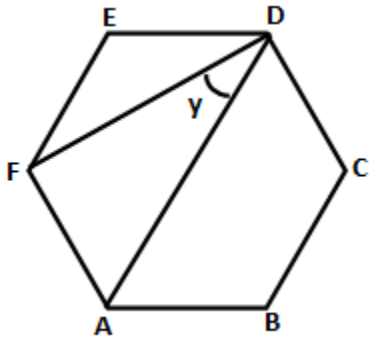
Solution:



All the measures of sides are indicated on the figure. So sum of measures which are indicated by yellow background is the perimeter of the figure. That makes 44 cm

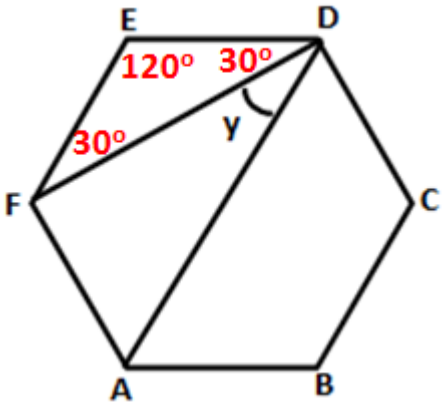
Answer: A

Q43: ABCDE is a hexagon. Find the measure of the angle y ?



A) 45° B) 30° C) 60° D) 35°

Solution:



One of the interior angle of hexagon is 120°. (divide 360 by the number of sides and minus from 180). As $\triangle FED$ is a isosceles triangle, the other two angles measures 30° each. We know that FE//AD, so y=30° (alternate angles)

Answer: B

Q44: Brenda is 4 years older than Walter, and Carol is twice as old as Brenda. Three years ago, the sum of their ages was 35. How old is Brenda?

A) 15 B) 11 C) 12 D) 13

Solution:
If the age of walter is x. The age of Brenda will be x+4 and the age of Carol will be 2x+8
Sum of ages is 4x+12.
Three years before (minus 3 from each), sum of their ages was 35.

$$4x+12-9=35$$
$$4x+3=35$$
$$4x=32$$
$$x=8$$

Brenda is x+4=8+4=12

Answer: C

Q45: One of the products of a number is 7 times of the other one. What is the square of greater one if the number is 63?

A) 289 B) 900 C) 576 D) 441

Solution:
If one of them is x, the other one will be $7x$
The product is 63

$$x\times 7x=63$$
$$7x^2=63$$
$$x^2=9$$
$$x=\pm 3$$

If one number is 3, the other one will be 21
If one number is -3, the other one will be -21
Square of the greater one is $21^2=441$
or $(-21)^2=441$

Answer: D

Q46: The number of proper subsets of a set is 127. What is the number of elements of the set?

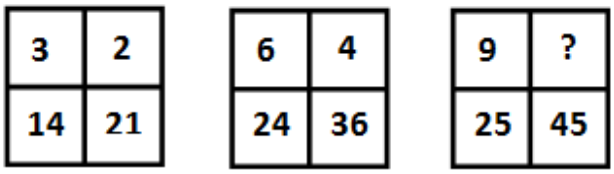
A) 5 B) 6 C) 7 D) 8

Solution:
If the number of proper subsets is 127, the number of subsets will be 128 as one improper subsets is there.

$$2^n=128$$
$$n=7$$

Answer: C

Q47: What is the unknown number in the sequence given below?



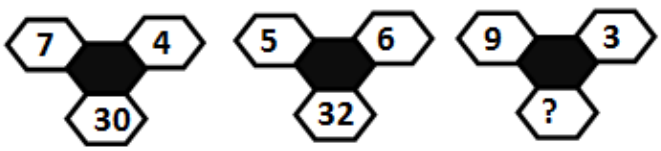
A) 10 B) 5 C) 9 D) 15

Solution:
In the first step; 3x12=2x21
In the second step; 6x24=4x36
So in the last step

$$9\times 25=?\times 45$$
$$?=5$$

Answer: B

Q48: What is the unknown number in the sequence given below?



A) 24 B) 27 C) 29 D) 31

Solution:
Multiply the first two numbers and add 2

$$9\times 3+2=27+2=29$$

Answer: C

Q49: If $x+y=\sqrt{5}$, $x.y=2$ **then what is** x^2+y^2.

A) -1 **B)** 1 **C)** 2 **D)** -2

Solution:

$$x^2+y^2=(x+y)^2-2xy=\left(\sqrt{5}\right)^2-2\times 2$$
$$=5-4=1$$

Answer: B

Q50: The difference between a two-digit number and the number obtained by interchanging the positions of its digits is 36. What is the difference between the two digits of that number?

A) 4 B) 5 C) 6 D) 8

Solution:
Lest have a two digit number as ab. After interchanging the positions of its digits, the number will be ba.

$$ab-ba=36$$
$$10a+b-10b-a=36$$
$$9a-9b=36$$
$$9(a-b)=36$$
$$a-b=4$$

Answer: A