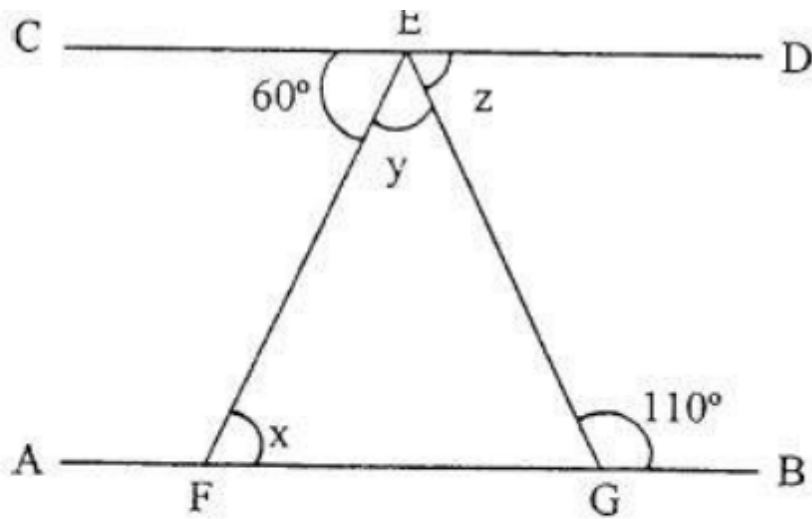


Level 1:



If AB is parallel to CD in the given figure, then  $\angle x$ ,  $\angle y$  and  $\angle z$  respectively are:

- |                                    |                                    |
|------------------------------------|------------------------------------|
| (a) $60^\circ, 50^\circ, 70^\circ$ | (b) $50^\circ, 60^\circ, 70^\circ$ |
| (c) $60^\circ, 60^\circ, 60^\circ$ | (d) $70^\circ, 50^\circ, 60^\circ$ |

**What is the solution set of the inequality**

$$5 - |x + 4| \leq -3?$$

**A**  $-2 \leq x \leq 6$

**B**  $x \leq -2$  or  $x \geq 6$

**C**  $-12 \leq x \leq 4$

**D**  $x \leq -12$  or  $x \geq 4$

If the mean of the observations :

$$x, x + 3, x + 5, x + 7, x + 10$$

is 9, the mean of the last three observations is

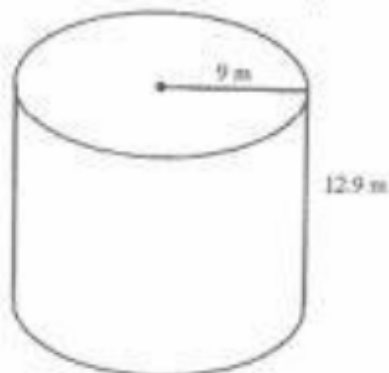
(A)  $10\frac{1}{3}$

(B)  $10\frac{2}{3}$

(C)  $11\frac{1}{3}$

(D)  $11\frac{2}{3}$

Find the surface area of the cylinder to the nearest square unit. (Use  $\pi = 3.14$ )



[A]  $1238 \text{ m}^2$

[B]  $116 \text{ m}^2$

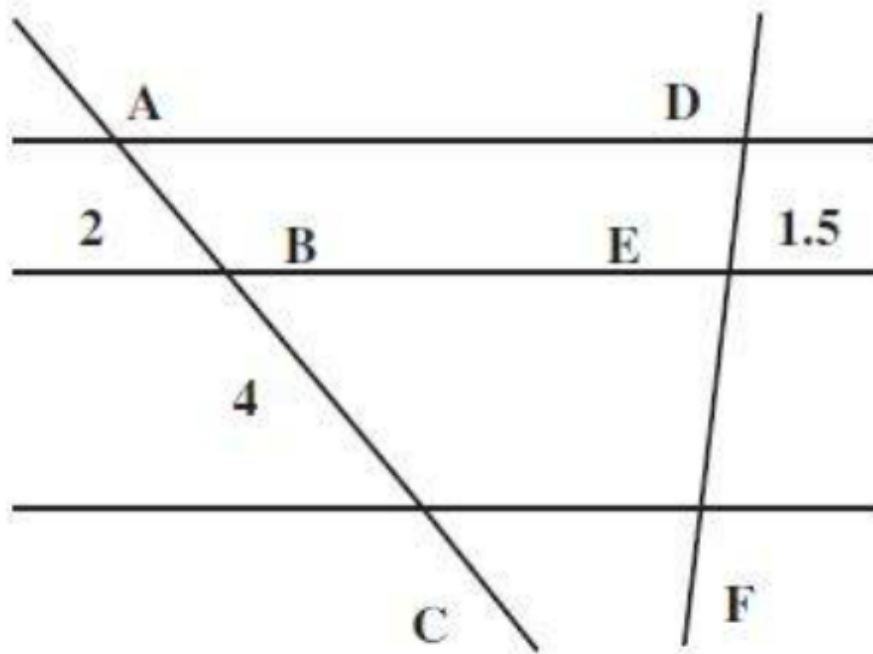
[C]  $619 \text{ m}^2$

[D]  $197 \text{ m}^2$

A trader makes a profit equal to the selling price of 75 articles when he sold 100 of the articles. What % profit did he make in the transaction?

- (1) 33.33%                      (2) 75%  
(3) 300%                         (4) 150%

Three parallel lines are cut by two transversals as shown in the given figure. If  $AB = 2$  cm,  $BC = 4$  cm and  $DE = 1.5$  cm, then the length of  $EF$  is:



- (1) 2 cm                            (2) 3 cm  
(3) 3.5 cm                        (4) 4 cm

How many bricks, each measuring 25 cm x 11.25 cm x 6 cm, will be needed to build a wall of 8 m x 6 m x 22.5 cm?

Porur Times is a newspaper which is distributed free to residents in and near Porur. It carries advertisement on different aspects such as rental, real estate, tuition, business deals etc. Porur Times gave a puzzle and wanted answers to be emailed to them within a day. The question read as under: —How many three digit numbers can be formed using the digits 1,2,3,4,5 (but with repetition) that are divisible by 4???

A boy walks some distance towards north and then turns right, walks some distance. After walking some time he turns left and walks some distance and then walks some dist and then he walks at an angle of 45degree towards right and then turns to his left and walks. Towards Which direction was he walking finally???

If  $3 + 5 = 19$ ,  $5 + 9 = 61$  and  $9 + 12 = 117$  then  $13 + 14 = ?$

Level 2:

24. Albert and Bernard just become friends with Cheryl, and they want to know when her birthday is. Cheryl gives them a list of 10 possible dates.

May 15	May 16	May 19
June 17	June 18	
July 14	July 16	
August 14	August 15	August 17

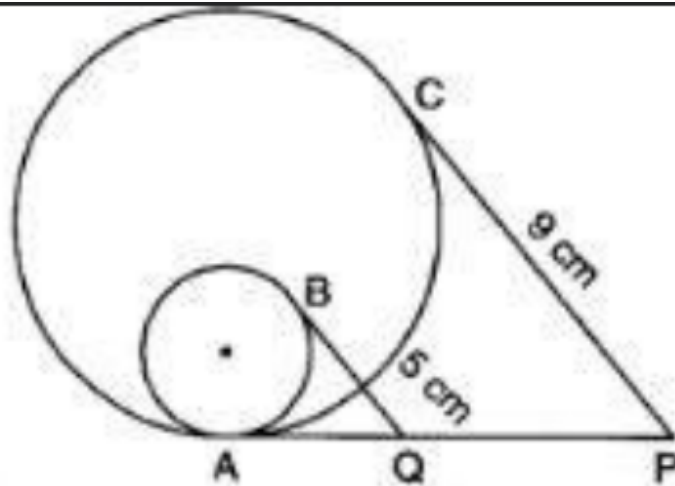
Cheryl then tells Albert and Bernard separately the month and the day of her birthday respectively.

Albert: I don't know when Cheryl's birthday is, but I know that Bernard does not know too.

Bernard: At first I don't know when Cheryl's birthday is, but I know now.

Albert: Then I also know when Cheryl's birthday is.

So when is Cheryl's birthday?



In the given figure, PA is a common tangent and QB and PC are the tangents from Q and P to the smaller and larger circle respectively.

If  $QB = 5$  cm and  $PC = 9$  cm, then evaluate length of PQ.

3. The number of solutions of the equation  $\tan x + \sec x = 2 \cos x$ , where  $0 \leq x \leq \pi$ , is
- (A) 0                      (B) 1                      (C) 2                      (D) 3.

Find all real functions  $f$  from  $\mathbb{R} \rightarrow \mathbb{R}$  satisfying the relation

$$f(x^2 + yf(x)) = xf(x + y).$$

$$\text{If } \frac{\log x}{(b-c)} = \frac{\log y}{(c-a)} = \frac{\log z}{(a-b)}$$

Then which of the following expression is incorrect?

**OPTIONS**

- 1)  $xyz = 1$
- 2)  $x^a y^b z^c = 1$
- 3)  $x^{(b+c)} \times y^{(c+a)} \times z^{(a+b)} = 1$
- 4)  $x^{(b+c-a)} \times y^{(c+a-b)} \times z^{(a+b-c)} = 1$
- 5)  $x^{(a+b-c)} \times y^{(b+c-a)} \times z^{(c+a-b)} = 1$

$3^x = 5^y = 45^z$ , then

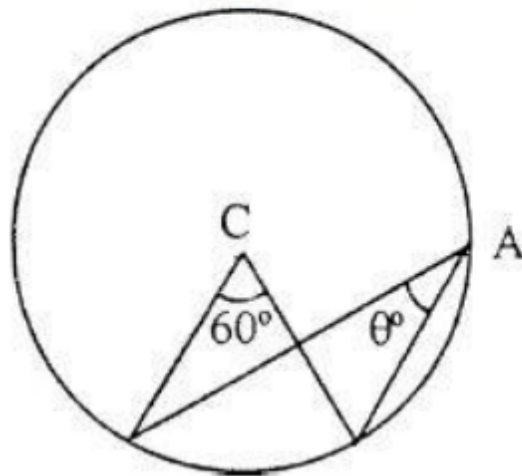
A)  $x + y + z = 0$

(B)  $\frac{2}{x} = \frac{1}{z} - \frac{1}{y}$

C)  $\frac{2}{y} = \frac{1}{x} - \frac{1}{z}$

(D)  $\frac{2}{z} = \frac{1}{y} - \frac{1}{x}$

5. C is the centre of a circle of radius 3 units, and  $\theta$  is the angle as shown in the given figure:



If  $\sin \theta + \cos^2 \theta = \frac{x^2 + 1}{x^2}$ , then the value of x is:

(a) 2

(b) 4

(c) 6

(d) 8