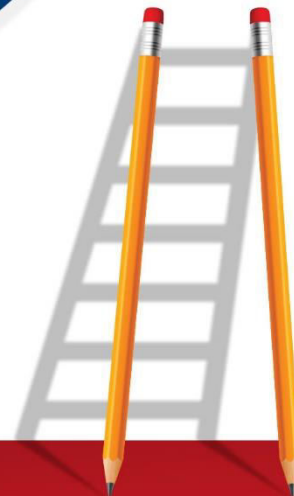


Logical Reasoning



Worksheet-5

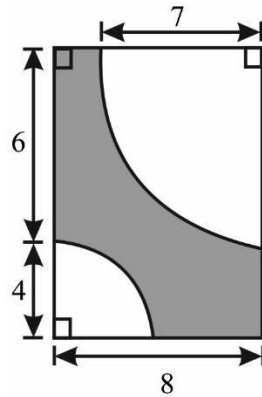


STOP

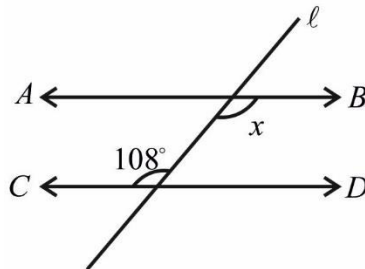
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Worksheet-5

1. Find the area of the shaded portion of the figure. All dimensions are in cm:



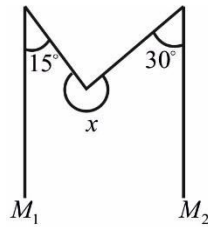
- A. $80 + \frac{65}{4}\pi$ B. $96 + \frac{25}{4}\pi$
 C. $80 - \frac{65}{4}\pi$ D. $96 - \frac{25}{4}\pi$
2. The two given angles, 108° and x are alternate, the lines AB and CD are not parallel. Then value of x not possible:



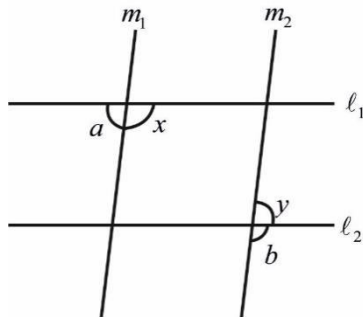
- A. 108° B. 220°
 C. 110° D. 360°
3. The reflex angle between the hands of a clock at 10:25 is:
- A. 180° B. $192\frac{1}{2}^\circ$
 C. 195° D. $197\frac{1}{2}^\circ$

Logical Reasoning

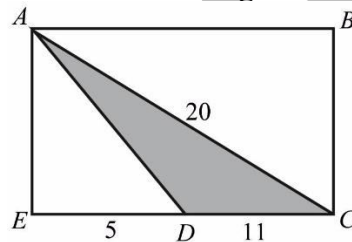
4. If M_1 and M_2 are parallel then value of x is:



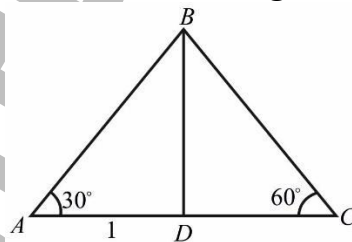
- A. 315°
 B. 45°
 C. 90°
 D. 300°
5. In the figure, if $x = y$ then which one is must be true.
 I. $a = b$
 II. ℓ_1 and ℓ_2 are parallel
 III. ℓ_1 and m_1 are perpendicular



- A. None
 B. I only
 C. I and II
 D. I and III
6. In the figure, area of shaded region is:

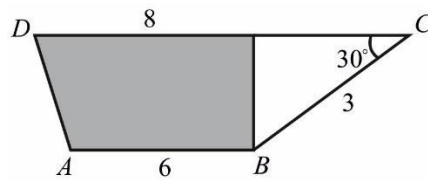


- A. 66
 B. 132
 C. 60
 D. 200
7. In the figure shown, area of triangle ABC is:

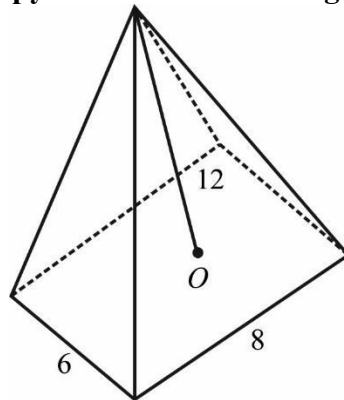


- A. $3\sqrt{3}$
 B. $4\sqrt{3}$
 C. $\frac{1}{3\sqrt{3}}$
 D. $\frac{2}{3\sqrt{3}}$

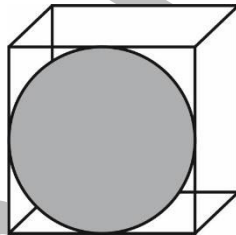
8. If AB and CD are parallel then area of the shaded region is:



- A. $165\sqrt{3}$
 B. $26+16\sqrt{3}$
 C. $\frac{21}{2}-\frac{9}{8}\sqrt{3}$
 D. $\frac{21}{2}+\frac{1}{8}\sqrt{3}$
9. Volume of the pyramid as shown in figure is:



- A. $68cm^3$
 B. $192cm^3$
 C. $72cm^3$
 D. $108cm^3$
10. A ball is fixed in a cube as shown in figure, the part of volume of cube outside the ball is:



- A. $\frac{2}{3}$
 B. $\frac{10}{21}$
 C. $\frac{1}{2}$
 D. $\frac{4}{3}$

ANSWER KEY (Worksheet-5)

1	C	6	A
2	A	7	D
3	D	8	C
4	A	9	B
5	B	10	B

ANSWERS EXPLAINED

1. Ans: (C)

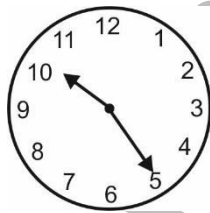
$$\begin{aligned}
 & 8 \times 10 - \left[\frac{1}{4} \pi (4)^2 + \frac{1}{4} \pi (7)^2 \right] \\
 &= 80 - \frac{1}{4} \pi (16 + 49) \\
 &= 80 - \frac{65}{4} \pi
 \end{aligned}$$

2. Ans: (A)

$\therefore$ Lines are not parallel so $x \neq 108^\circ$

3. Ans: (D)

$$\begin{aligned}
 & 6(30^\circ) + \frac{1}{2}(35) \\
 & 180^\circ + 17.5 \\
 & 197.5^\circ = 197\frac{1}{2}^\circ
 \end{aligned}$$



4. Ans: (A)

$$x = 360^\circ - (15^\circ + 30^\circ) = 360^\circ - 45^\circ = 315^\circ$$

5. Ans: (B)

$a = b$ is must only.

6. Ans: (A)

$\therefore$ Sides of triangle ACE are

$$AC = 20, EC = 16$$

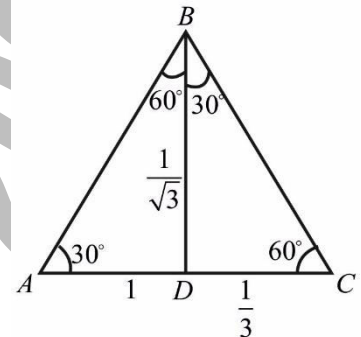
$$\text{And } 16:20 = 4:5$$

So AE can be find out by using ratio $3:4:5$ in a right angle triangle

$$\Rightarrow 3:4:5 \text{ by multiplying } 4 \Rightarrow 12:16:20$$

$$\text{Now area of triangle} = \frac{1}{2}(11)(12) = 66$$

7. Ans: (D)



$$|AD| = 1$$

$$|BD| = \frac{1}{\sqrt{3}}$$

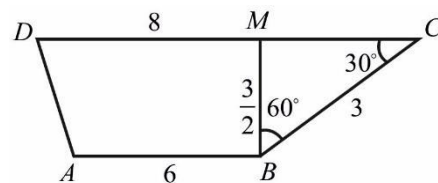
$$|CD| = \frac{1}{3}$$

Note:

$$\begin{aligned}
 & 30^\circ - 60^\circ - 90^\circ \\
 & 1:\sqrt{3}:2
 \end{aligned}$$

$$\text{Area} = \frac{1}{2} \left(1 + \frac{1}{3} \right) \frac{1}{\sqrt{3}} = \frac{1}{2} \left(\frac{4}{3} \right) \frac{1}{\sqrt{3}} = \frac{2}{3\sqrt{3}}$$

8. Ans: (C)



$$\text{Height} = |BM| = 2(3) = 6$$

$$|BC| = \frac{3}{2}\sqrt{3}$$

Required area

$$\begin{aligned}
 &= \frac{1}{2}(6+8) \left(\frac{3}{2} \right) - \frac{1}{2} \left(\frac{3}{2}\sqrt{3} \right) \left(\frac{3}{2} \right) \\
 &= \frac{21}{2} - \frac{9\sqrt{3}}{8}
 \end{aligned}$$

9. Ans: (B)

$$\frac{1}{3} (\text{Area of base}) (\text{height})$$

$$= \frac{1}{3} (6 \times 8) (12) = 4 \times 48 = 192$$

10. Ans: (B)

$$\begin{aligned} & \frac{x^3 - \frac{4}{3}\pi\left(\frac{x}{2}\right)^3}{x^3} \\ &= 1 - \frac{4}{3}\pi\frac{1}{8} \\ &= 1 - \frac{1}{6}\pi = 1 - \frac{1}{6} \times \frac{22}{7} = 1 - \frac{11}{21} = \frac{10}{21} \end{aligned}$$

STEP ENTRY TEST 2021

STOP

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