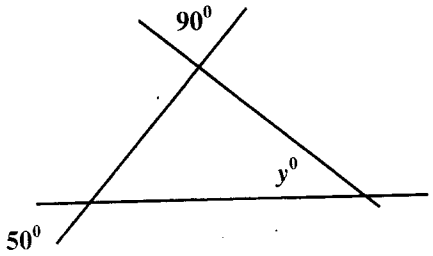
Practice Set 5

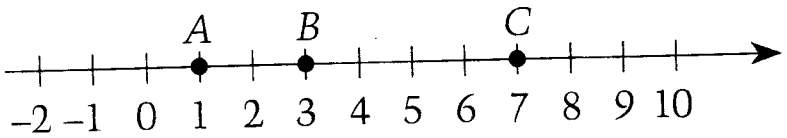
1.



What is the value of y in the figure above?

(A) 30
(B) 40
(C) 50
(D) 60
(E) 70

2.



On the number line above, what is the distance from point B to the midpoint of AC ?

(A) 1
(B) 2
(C) 3
(D) 4
(E) 5

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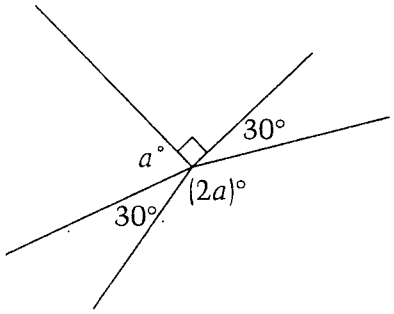
3. An equilateral figure has a perimeter that is 4 times the length of one of its sides. What is the figure?

(A) Triangle
(B) Square
(C) Pentagon
(D) Hexagon
(E) Circle

4.



In the figure above, what is the value of a?

(A) 50
(B) 55
(C) 60
(D) 65
(E) 70

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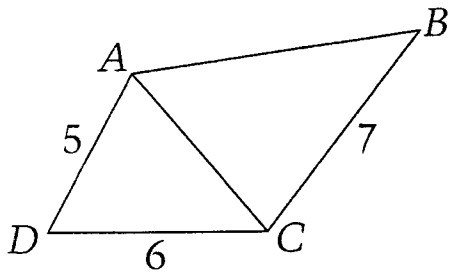
5. **If the width of a rectangle is 3, and its diagonal is 5, what is its area?**

(A) 8
(B) 10
(C) 12
(D) 15
(E) 16

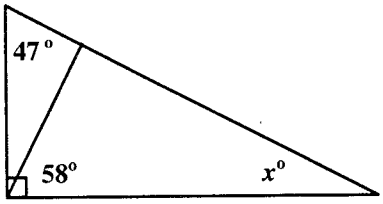
6.



If the perimeter of triangle ABC is 4 more than the perimeter of triangle ACD, what is the perimeter of quadrilateral $ABCD$?

(A) 20
(B) 22
(C) 24
(D) 25
(E) 26

7.



What is the value of x in the figure above?

(A) 43
(B) 58
(C) 75
(D) 79
(E) 101

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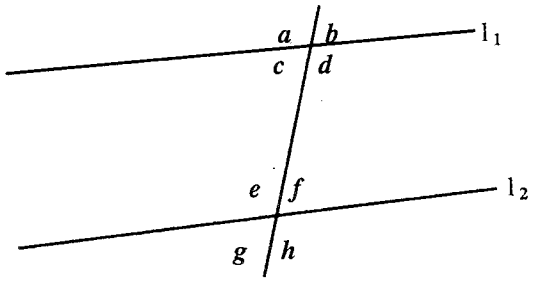
8. In triangle ABC, $AB = 6$, $BC = 12$, and $AC = x$. Which of the following cannot be a value of x?

(A) 6
(B) 7
(C) 8
(D) 9
(E) 10

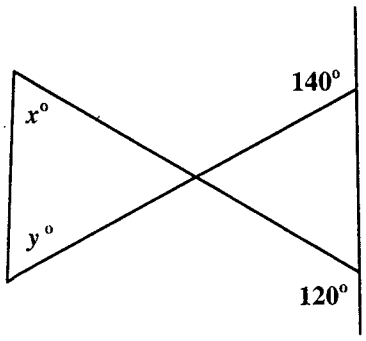
9.



In the figure above, if l_1 is parallel to l_2, then the sum of angles a and g is equal to all of the following <u>except</u>

(A) a and d
(B) b and c
(C) e and f
(D) f and h
(E) c and h

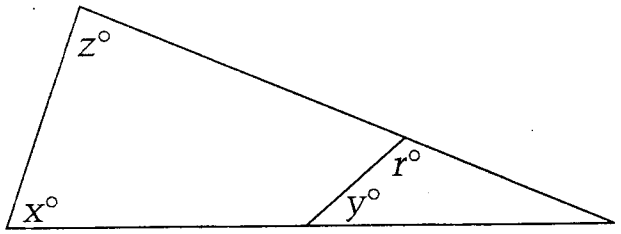
10.



What is the value of $x + y$ in the figure above?

(A) 140
(B) 120
(C) 100
(D) 80
(E) It cannot be determined from the information provided.

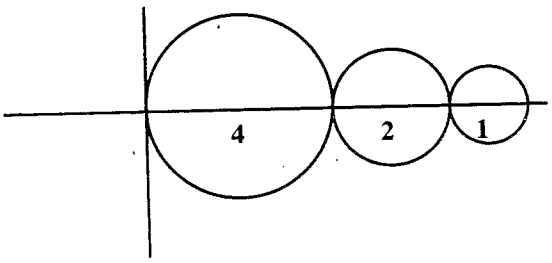
11.



In the figure above, which of the following must be true?

(A) $x + r = z + y$
(B) $x + r = z - y$
(C) $x - y = z + r$
(D) $x - r = y - z$
(E) $x + y = z + r$

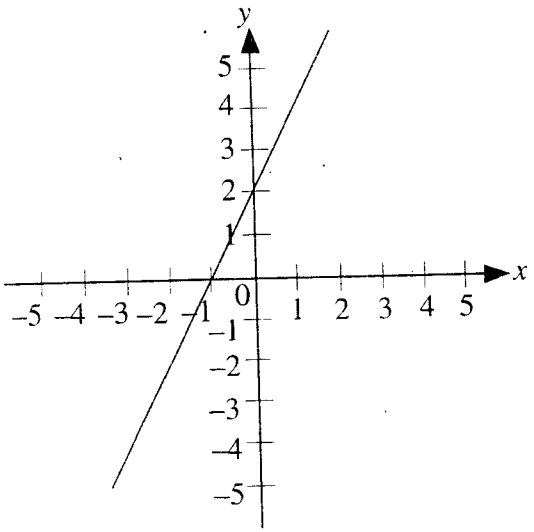
12.



In the figure above, the diameters of the circles are shown. What is the ratio of the area of the smallest circle to the area of the largest circle

(A) 1:4
(B) 1:8
(C) 1:12
(D) 1:16
(E) 1:24

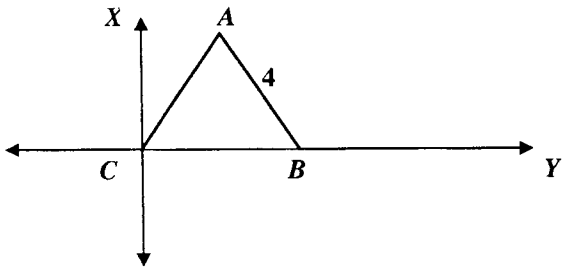
13.



Which of the following is an equation for the graph above?

(A) $y = -2x + 1$
(B) $y = x + 1$
(C) $y = x + 2$
(D) $y = 2x + 1$
(E) $y = 2x + 2$

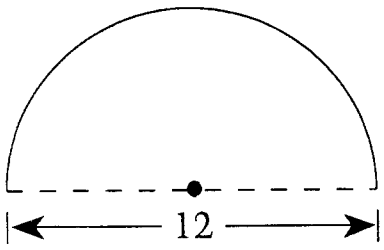
14.



What are the coordinates of point A in the figure above if $\bullet ABC$ is equilateral?

(A) (2, 4)
(B) $(2, 2\sqrt{3})$
(C) $(2\sqrt{3}, 2)$
(D) $(2\sqrt{3}, 4)$
(E) (4, 2)

15.



The figure above shows a piece of wire in the shape of a semicircle. If the piece of wire is bent to form a circle without any of the wire overlapping, what is the area of the circle?

(A) 6π
(B) 9π
(C) 12π
(D) 18π
(E) 36π

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16. In a coordinate plane, if points A $(p, 3)$ and B $(6, p)$ lie on a line with a slope of 2, what is the value of p?

(A) 1
(B) 2
(C) 3
(D) 4
(E) 5

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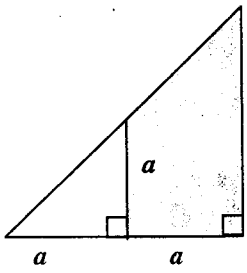
17. What is the perimeter, in meters, of a rectangular piece of land 20 meters wide that has the same area as a rectangular piece of land with length 30 meters and width 40 meters?

(A) 60
(B) 90
(C) 120
(D) 160
(E) 1200

18.



What is the area of the shaded region in the figure above in terms of a?

(A) $3a^2$

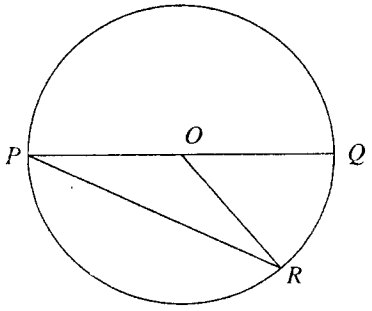
(B) $\frac{3a^2}{2}$

(C) a^2

(D) $\frac{2a^2}{3}$

(E) $\frac{a^2}{3}$

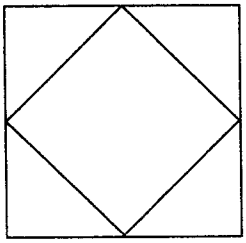
19.



In the figure above, O is the center of the circle and P, O, and Q are collinear. If $\angle ROQ$ measures 50°, what is the degree measure of $\angle ROQ$?

(A) 20
(B) 25
(C) 30
(D) 35
(E) 40

20.



In the figure above, the inside square was formed by connecting the midpoints of the sides of the outside square. If the perimeter of the inside square is $12\sqrt{2}$, what is the area of one of the 4 triangles that were formed?

(A) 4.5
(B) 9
(C) 18
(D) 27
(E) 36

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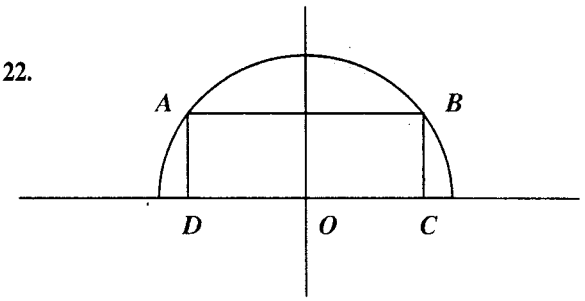
21. A wooden cube with volume 64 is sliced in half horizontally. The two halves are then glued together to form a rectangular solid which is not a cube. What is the surface area of this new solid?

(A) 128
(B) 112
(C) 96
(D) 56
(E) 48

22.



O is the center of the semicircle above. *ABCD* is a rectangle inscribed in the semicircle. If the area of the semicircle is 50π, and $OD = 8$, what is the area of the shaded region?

(A) $50\pi - 48$
(B) $50\pi - 96$
(C) $100\pi - 48$
(D) $100\pi - 96$
(E) $100\pi - 192$

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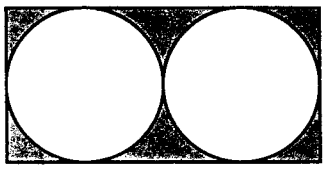
23. What is the area of a right triangle if the length of one leg is a and the length of the hypotenuse is c?

(A) $\frac{ac}{2}$
(B) $\frac{ac - a^2}{2}$
(C) $\frac{a^2+c^2}{2}$
(D) $\frac{a\sqrt{c^2a^2}}{2}$
(E) $\sqrt{a^2+c^2}$

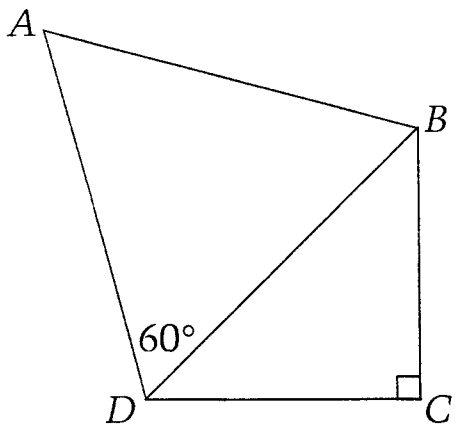
24.



The figure above is made up of a rectangle and two circles. The circles are tangent to the rectangle at the three places shown. If the radii of the two tangent circles are 2, what is the area of the shaded region?

(A) $16 - 4\pi$
(B) $16 - 2\pi$
(C) $32 - 4\pi$
(D) $32 - 8\pi$
(E) $32 - 16\pi$

25.



In the figure above, if $BC = DC$, and $AD = AB$, what is the value of $\frac{AB}{CD}$?

(A) $\frac{\sqrt{2}}{2}$
(B) $\sqrt{2}$
(C) $\frac{\sqrt{3}}{3}$
(D) $\sqrt{3}$
(E) 2
