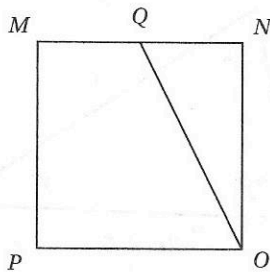


Exercise Set 1: Geometry (No Calculator)

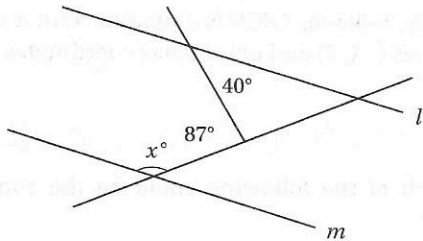
1



In the figure above, $MNOP$ is a square and Q is the midpoint of \overline{MN} . If $QO = \frac{\sqrt{20}}{3}$, what is the area of square $MNOP$?

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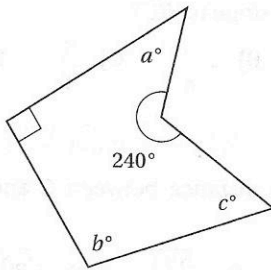
2



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Lines l and m are parallel in the figure above. What is the value of x ?

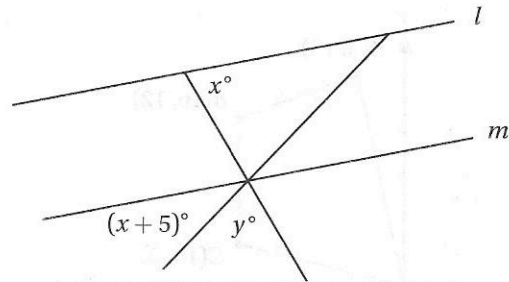
3



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In the figure above, what is the value of $a + b + c$?

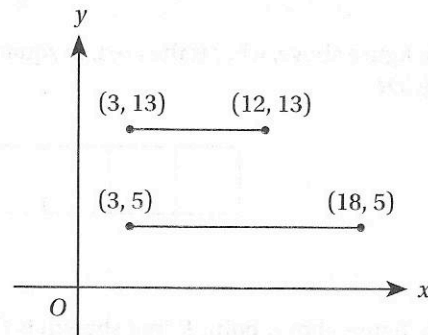
4



Lines l and m are parallel in the figure above. Which of the following expresses the value of y in terms of x ?

- A) $95 - 2x$
- B) $165 - 2x$
- C) $175 - 2x$
- D) $185 - 2x$

5



In the figure above, what is the distance between the midpoints (not shown) of the two line segments?

- A) $\sqrt{68}$
- B) $\sqrt{73}$
- C) $\sqrt{76}$
- D) $\sqrt{78}$

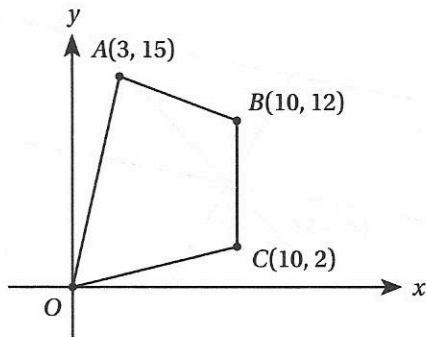
6

What is the perimeter of an equilateral triangle inscribed in a circle with circumference 24π ?

- A) $36\sqrt{2}$
- B) $30\sqrt{3}$
- C) $36\sqrt{3}$
- D) $24\sqrt{6}$

Exercise Set 1: Geometry (Calculator)

Questions 7–9 are based on the figure below.



Note: Figure not drawn to scale.

7

In the figure above, what is the perimeter of quadrilateral $ABCO$, to the nearest integer?

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8

In the figure above, what is the area, in square units, of $ABCO$?

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9

In the figure above, point K (not shown) is the midpoint of \overline{OA} , and point M (not shown) is the midpoint of \overline{AB} . What is the slope of \overline{KM} ?

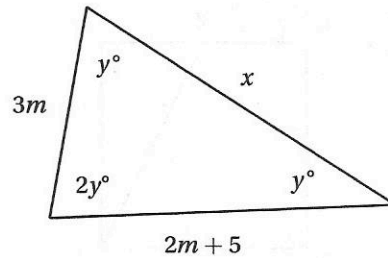
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10

In the xy -plane, point H has coordinates $(2, 1)$ and point J has coordinates $(11, 13)$. If \overline{HK} is parallel to the x -axis and \overline{JK} is parallel to the y -axis, what is the perimeter of triangle HJK ?

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11



Note: Figure not drawn to scale.

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

- A) $5\sqrt{2}$ B) $5\sqrt{3}$ C) $15\sqrt{2}$ D) $15\sqrt{3}$

Questions 12–15 are based on the situation described below.

In the xy -plane, $ABCD$ is a square. Point A has coordinates $(-1, 2)$ and point B has coordinates $(3, 5)$.

12

Which of the following could be the coordinates of C ?

- A) $(0, 9)$ B) $(6, 0)$ C) $(2, -2)$ D) $(-4, 6)$

13

What is the area of square $ABCD$?

- A) 25 B) 28 C) 30 D) 32

14

What is the slope of \overline{BC} ?

- A) $-\frac{4}{3}$ B) $-\frac{3}{4}$ C) $\frac{3}{4}$ D) $\frac{4}{3}$

15

What is the distance between C and the midpoint of \overline{AB} ?

- A) $\frac{\sqrt{50}}{4}$ B) $\frac{\sqrt{125}}{4}$ C) $\frac{\sqrt{50}}{2}$
 D) $\frac{\sqrt{125}}{2}$