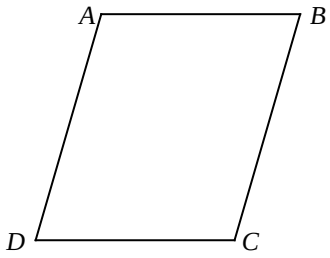
Geometry MP4 Exam Study Guide

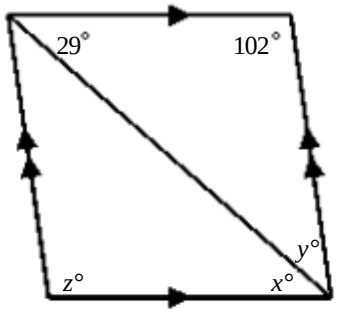
Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

____ 1. *ABCD* is a parallelogram. If $m\angle CDA = 66$, then $m\angle BCD =$ ___?___. The diagram is not to scale.



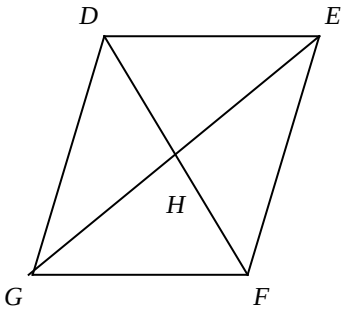
a. 66 b. 124 c. 114 d. 132

____ 2. Find the values of the variables in the parallelogram. The diagram is not to scale.



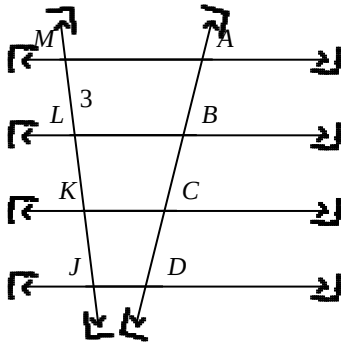
a. $x = 49,\ y = 29,\ z = 102$
b. $x = 29,\ y = 49,\ z = 131$
c. $x = 49,\ y = 49,\ z = 131$
d. $x = 29,\ y = 49,\ z = 102$

____ 3. In parallelogram *DEFG*, $DH = x + 3$, $HF = 3y$, $GH = 4x - 5$, and $HE = 2y + 3$. Find the values of x and y. The diagram is not to scale.



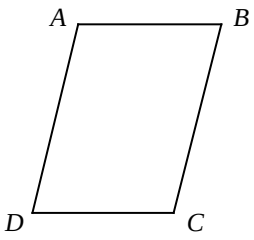
a. $x = 6, y = 3$ b. $x = 2, y = 3$ c. $x = 3, y = 2$ d. $x = 3, y = 6$

____ 4. In the figure, the horizontal lines are parallel and $AB = BC = CD$. Find *JM*. The diagram is not to scale.



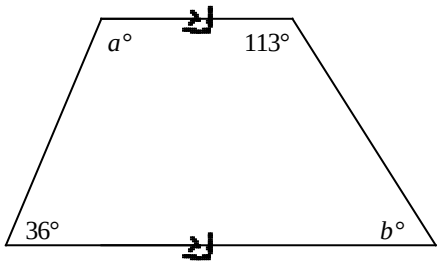
a. 9 b. 12 c. 6 d. 3

____ 5. If $m\angle B = m\angle D = 41$, find $m\angle C$ so that quadrilateral *ABCD* is a parallelogram. The diagram is not to scale.



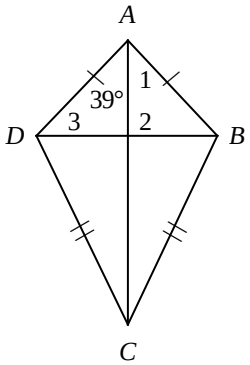
a. 41 b. 139 c. 82 d. 278

____ 6. Find the values of *a* and *b*.The diagram is not to scale.



a. $a = 144,\ b = 67$
b. $a = 144,\ b = 36$
c. $a = 113,\ b = 67$
d. $a = 113,\ b = 36$

____ 7. Find $m\angle 1$ and $m\angle 3$ in the kite. The diagram is not to scale.



a. 51, 51 b. 39, 39 c. 39, 51 d. 51, 39

____ 8. In quadrilateral *MNOP*, $\angle M \cong \angle N$. Which of a parallelogram, trapezoid, or rhombus could quadrilateral *MNOP* be?

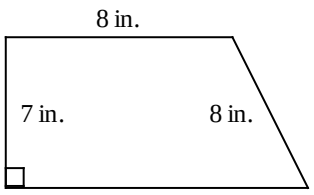
a. parallelogram or rhombus
b. parallelogram only
c. trapezoid only
d. any of the three

____ 9. In the coordinate plane, three vertices of rectangle *HIJK* are *H*(0, 0), *I*(0, *d*), and *K*(*e*, 0). What are the coordinates of point *J*?

a. (2*e*, 2*d*) b. (*d*, *e*) c. (*e*, *d*) d. $\left(\frac{d}{2}, \frac{e}{2}\right)$

Find the area. The figure is not drawn to scale.

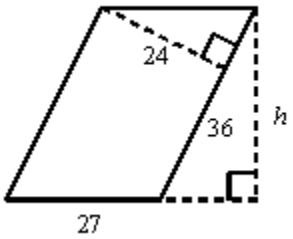
____ 10.



Not drawn to scale

a. 77.2 in.^{2} b. 80 in.^{2} c. 75 in.^{2} d. 70 in.^{2}

____ 11. Find the value of *h* in the parallelogram.

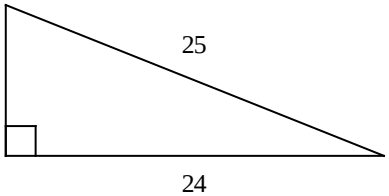


Not drawn to scale

a. 32 b. 28 c. 40.5 d. 35

Find the length of the missing side. The triangle is not drawn to scale.

____ 12.



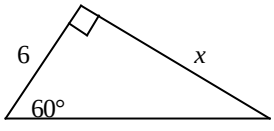
a. 35 b. 49 c. 7 d. 2

____ 13. A grid shows the positions of a subway stop and your house. The subway stop is located at (–5, 2) and your house is located at (–9, 9). What is the distance, to the nearest unit, between your house and the subway stop?

a. 5 b. 13 c. 8 d. 18

Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

____ 14.

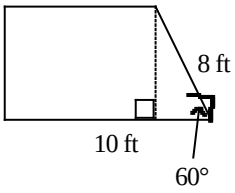


Not drawn to scale

a. 2 b. $12\sqrt{3}$ c. $\frac{1}{2}$ d. $6\sqrt{3}$

Find the area of the trapezoid. Leave your answer in simplest radical form.

____ 15.



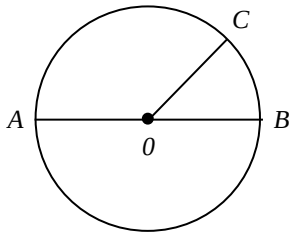
Not drawn to scale

a. $40\sqrt{3}$ ft^2 b. $16\sqrt{3}$ ft^2 c. $24\sqrt{3}$ ft^2 d. $32\sqrt{3}$ ft^2

____ 16. The area of a regular hexagon is 35 in.^{2}. Find the length of a side. Round your answer to the nearest tenth.
a. 3.7 in. b. 4.8 in. c. 6.4 in. d. 13.5 in.

____ 17. Find the area of an equilateral triangle with radius $8\sqrt{3}$ m. Leave your answer in simplest radical form.
a. $96\sqrt{3}$ m^2 b. $144\sqrt{3}$ m^2 c. $18\sqrt{3}$ m^2 d. $12\sqrt{3}$ m^2

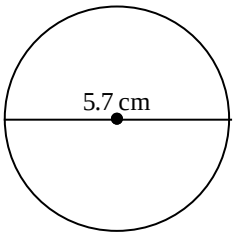
____ 18. Identify a semicircle that contains *C*.



a. semicircle *ABC*
b. semicircle *AC*
c. semicircle *CB*
d. semicircle *ACB*

Find the circumference. Leave your answer in terms of π.

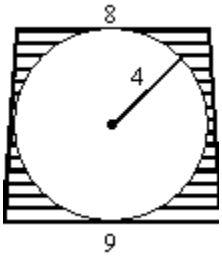
____ 19.



a. 11.4π cm b. 8.55π cm c. 2.85π cm d. 5.7π cm

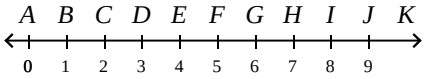
Find the area of the circle. Leave your answer in terms of π.

____ 20. Find the area of the shaded portion of the figure. Dimensions are in feet. Leave your answer in terms of π.



a. $(68 - 8\pi)$ ft^2 b. $(72 - 16\pi)$ ft^2 c. $(68 - 16\pi)$ ft^2 d. none of these

____ 21. Find the probability that a point chosen at random from $\overline{AK}$ is on the segment $\overline{CJ}$.

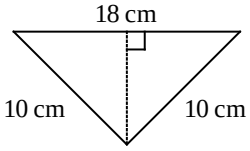


a. $\frac{1}{5}$ b. $\frac{3}{10}$ c. $\frac{9}{10}$ d. $\frac{7}{10}$

____ 22. A circular dartboard has a radius of 2 meters and a red circle in the center. Assume you hit the target at a random point. For what radius of the red center region does P(hitting red) = 0.6?

a. 77 m b. 1.2 m c. 1.55 cm d. 1.32 m

____ 23. Find the area of the triangle. Leave your answer in simplest radical form.

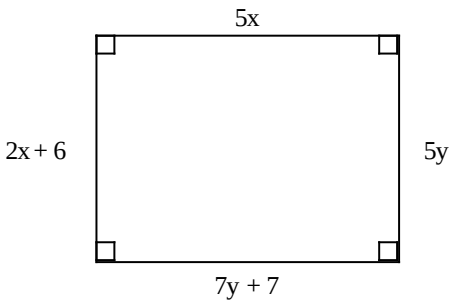


Not drawn to scale

a. $94\sqrt{14}$ cm^2 b. $18\sqrt{19}$ cm^2 c. $184\sqrt{14}$ cm^2 d. $9\sqrt{19}$ cm^2

Short Answer

24. Find the values of the variables and the lengths of the sides of this rectangle. The diagram is not to scale.



25. Isosceles trapezoid *ABCD* has legs $\overline{AB}$ and $\overline{CD}$, and base $\overline{BC}$. If $AB = 4y - 3$, $BC = 3y - 4$, and $CD = 5y - 10$, find the value of y.