

## 10.5-8 Study Guide

### Multiple Choice

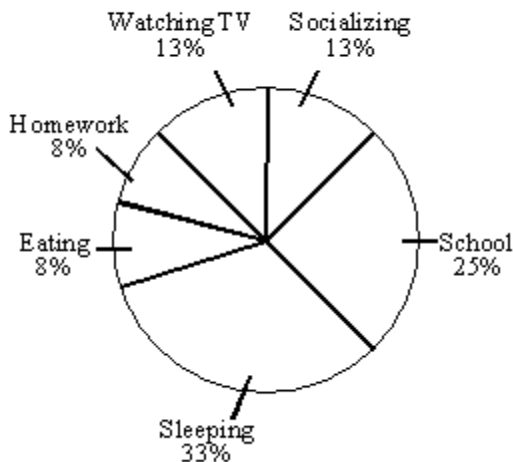
Identify the choice that best completes the statement or answers the question.

- \_\_\_ 1. 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  $P(\text{hitting red}) = 0.6$ ?
- a. 77 m                      b. 1.2 m                      c. 1.55 cm                      d. 1.32 m
- \_\_\_ 2. The area of a regular hexagon is  $60 \text{ in.}^2$ . Find the length of a side. Round your answer to the nearest tenth.
- a. 4.8 in.                      b. 6.3 in.                      c. 8.3 in.                      d. 23.1 in.

**Find the area of the regular polygon. Give the answer to the nearest tenth.**

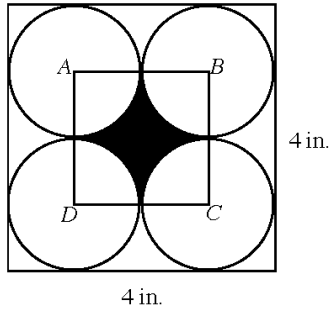
- \_\_\_ 3. dodecagon with a perimeter of 108 cm
- a.  $1813.8 \text{ cm}^2$                       b.  $906.9 \text{ cm}^2$                       c.  $923.6 \text{ cm}^2$                       d.  $938.9 \text{ cm}^2$
- \_\_\_ 4. Grade 7 students were surveyed to determine how many hours a day they spent on various activities. The results are shown in the circle graph below. Find the measure of each central angle in the circle graph.
- a. sleeping  
b. eating

**How Students Spend Their Time**



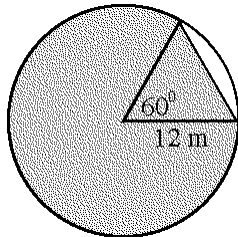
- a. 118.8; 28.8                      b. 108; 28.8                      c. 118.8; 288                      d. 59.4; 288
- \_\_\_ 5. The circumference of a circle is  $46\pi$  cm. Find the diameter, the radius, and the length of an arc of  $90^\circ$ .
- a. 46 cm; 23 cm;  $11.5\pi$  cm                      c. 92 cm; 23 cm;  $135\pi$  cm  
b. 46 cm; 92 cm;  $5.8\pi$  cm                      d. 23 cm; 46 cm;  $5.8\pi$  cm
- \_\_\_ 6. A team in science class placed a chalk mark on the side of a wheel and rolled the wheel in a straight line until the chalk mark returned to the same position. The team then measured the distance the wheel had rolled and found it to be 30 cm. To the nearest tenth, what is the area of the wheel?
- a.  $143.3 \text{ cm}^2$                       b.  $71.7 \text{ cm}^2$                       c.  $23.6 \text{ cm}^2$                       d.  $286.6 \text{ cm}^2$

7. Find the area of the shaded portion of the figure. Each vertex of square  $ABCD$  is at the center of a circle. Leave your answer in terms of  $\pi$ .



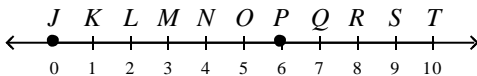
- a.  $(4 - \pi) \text{ in.}^2$       b.  $\left(4 - \frac{1}{2}\pi\right) \text{ in.}^2$       c.  $\left(4 - \frac{\pi}{4}\right) \text{ in.}^2$       d.  $\pi \text{ in.}^2$

8. Find the area of the shaded region. Leave your answer in terms of  $\pi$  and in simplest radical form.



- a.  $(120\pi + 6\sqrt{3}) \text{ m}^2$       c.  $(120\pi + 36\sqrt{3}) \text{ m}^2$   
 b.  $(142\pi + 36\sqrt{3}) \text{ m}^2$       d. none of these

9. Find the probability that a point chosen at random from  $\overline{JP}$  is on the segment  $\overline{KO}$ .

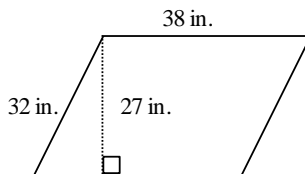


- a.  $\frac{1}{2}$       b.  $\frac{4}{5}$       c.  $\frac{5}{6}$       d.  $\frac{2}{3}$

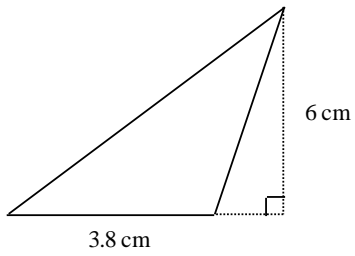
**Short Answer**

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

10.

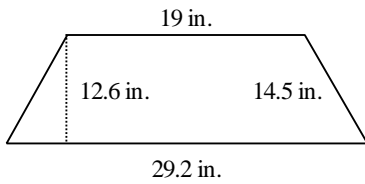


11.

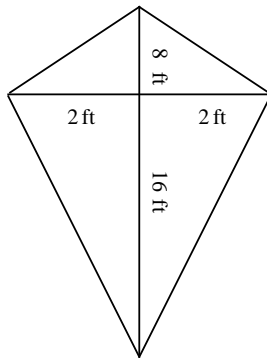


**Find the area of the trapezoid. Leave your answer in simplest radical form.**

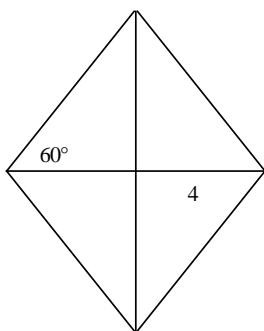
12.



13. What is the area of the kite?

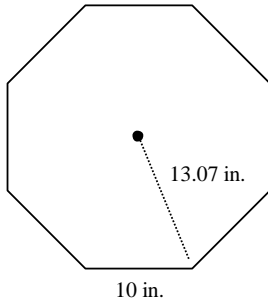


14. Find the area of the rhombus. Leave your answer in simplest radical form.



Not drawn to scale

15. Find the area of the regular polygon. Round your answer to the nearest tenth.



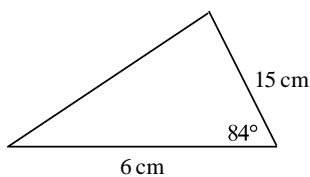
16. It costs a family \$324 to buy a 10-ft-by-12-ft rug. At this rate, what will it cost them to buy a 15-ft-by-18-ft rug?

**Find the area of the regular polygon. Give the answer to the nearest tenth.**

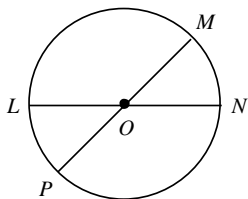
17. decagon with a side of 4 cm
18. hexagon with a side of 8 in.
19. pentagon with a radius of 4 m
20. hexagon with a radius of 5 in.
21. The Ruffs are planning to buy an above-ground swimming pool shaped as a regular octagon. The radius of the octagon is 9 feet. To the nearest tenth, find the area of the surface of the water in the pool.

**Find the area of the triangle. Give the answer to the nearest tenth. The drawing may not be to scale.**

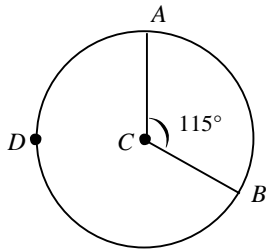
- 22.



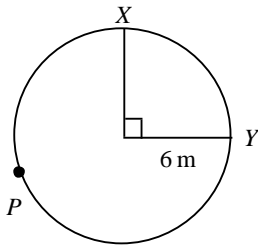
23. I identify two minor arcs, semicircles, major arcs of  $\odot O$ .



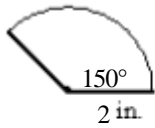
24. Name the minor and major arcs and find their measures.



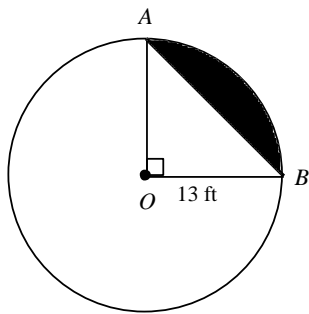
25. Find the length of  $\widehat{XPY}$ . Leave your answer in terms of  $\pi$ .



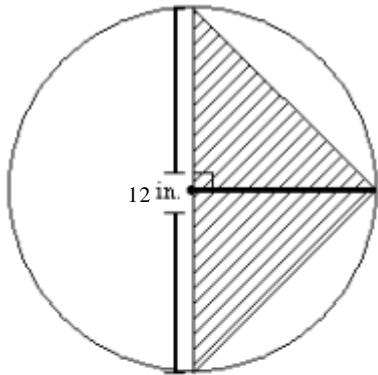
26. Find the area of the figure to the nearest tenth.



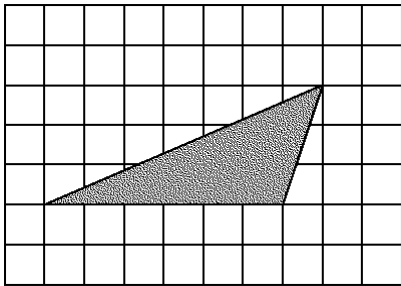
27. The area of sector  $AOB$  is  $42.25\pi \text{ ft}^2$ . Find the exact area of the shaded region.



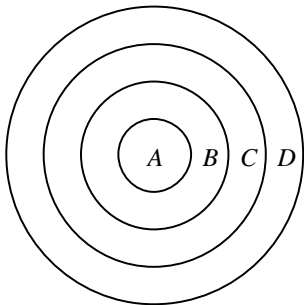
28. Find the probability that a point chosen at random will lie in the shaded area.



29. A fly lands at random at a point on the grid. Find the probability of the fly landing on the figure.



30. The radius of the bull's-eye of the dartboard is 8 inches. The radius of each concentric circle is 8 inches more than the radius of the circle inside it. If a dart lands at random on the dartboard, what is the probability that the dart will hit in area *C*?



## 10.5-8 Study Guide Answer Section

### MULTIPLE CHOICE

- |           |   |
|-----------|---|
| 1. ANS: C | OBJ: 10-8.1 Use segment and area models to find the probabilities of events |
| 2. ANS: A | OBJ: 10-3.1 Find the area of a regular polygon                              |
| 3. ANS: B | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |
| 4. ANS: A | OBJ: 10-6.1 Find the measures of central angles and arcs                    |
| 5. ANS: A | OBJ: 10-6.2 Find the circumference and arc length                           |
| 6. ANS: B | OBJ: 10-7.1 Find the areas of circles, sectors, and segments of circles     |
| 7. ANS: A | OBJ: 10-7.1 Find the areas of circles, sectors, and segments of circles     |
| 8. ANS: C | OBJ: 10-7.1 Find the areas of circles, sectors, and segments of circles     |
| 9. ANS: D | OBJ: 10-8.1 Use segment and area models to find the probabilities of events |

### SHORT ANSWER

- |                                     |   |
|-------------------------------------|---|
| 10. ANS:<br>1026 in. <sup>2</sup>   | OBJ: 10-1.1 Find the area of parallelograms and triangles                   |
| 11. ANS:<br>11.4 cm <sup>2</sup>    | OBJ: 10-1.1 Find the area of parallelograms and triangles                   |
| 12. ANS:<br>303.66 in. <sup>2</sup> | OBJ: 10-2.1 Find the area of a trapezoid, rhombus, or kite                  |
| 13. ANS:<br>48 ft <sup>2</sup>      | OBJ: 10-2.1 Find the area of a trapezoid, rhombus, or kite                  |
| 14. ANS:<br>$32\sqrt{3}$            | OBJ: 10-2.1 Find the area of a trapezoid, rhombus, or kite                  |
| 15. ANS:<br>483.0 in. <sup>2</sup>  | OBJ: 10-3.1 Find the area of a regular polygon                              |
| 16. ANS:<br>\$729                   | OBJ: 10-4.1 Find the perimeters and areas of similar polygons               |
| 17. ANS:<br>123.1 cm <sup>2</sup>   | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |
| 18. ANS:<br>166.3 in. <sup>2</sup>  | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |
| 19. ANS:<br>38 m <sup>2</sup>       | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |
| 20. ANS:<br>65.0 in. <sup>2</sup>   | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |
| 21. ANS:<br>228.7 ft <sup>2</sup>   | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |
| 22. ANS:<br>44.8 cm <sup>2</sup>    | OBJ: 10-5.1 Find areas of regular polygons and triangles using trigonometry |

23. ANS:  
 Examples:  
 minor:  $MN, MN$   
 semicircle:  $LMN, LPN$       OBJ: 10-6.1 Find the measures of central angles and arcs  
 major:  $PMN, NLM$
24. ANS:  
 minor:  $AB = 115^\circ$       OBJ: 10-6.1 Find the measures of central angles and arcs  
 major:  $ADB = 245^\circ$
25. ANS:  
 $9\pi$  m      OBJ: 10-6.2 Find the circumference and arc length
26. ANS:  
 $5.2 \text{ in.}^2$       OBJ: 10-7.1 Find the areas of circles, sectors, and segments of circles
27. ANS:  
 $(42.25\pi - 84.5) \text{ ft}^2$       OBJ: 10-7.1 Find the areas of circles, sectors, and segments of circles
28. ANS:  
 $0.32$       OBJ: 10-8.1 Use segment and area models to find the probabilities of events
29. ANS:  
 $\frac{9}{70}$       OBJ: 10-8.1 Use segment and area models to find the probabilities of events
30. ANS:  
 $\frac{5}{16}$       OBJ: 10-8.1 Use segment and area models to find the probabilities of events