

2nd semester - Alg/Geo1 - Exam Review

Review of Knowledge

Name

KEY

$$1. 2^5 * 2^3$$

$$2^8$$

$$2. (-7)^2 (-7)$$

$$(-7)^3$$

$$3. 4^{-6} * 4^{-1}$$

$$4^{-7} = \frac{1}{4^7}$$

$$4. (5^{-2})^2$$

$$5^{-4} = \frac{1}{5^4}$$

$$5. (3^2)^3$$

$$3^6$$

$$6. \frac{4^{-7}}{4}$$

$$\frac{1}{4^8}$$

$$7. \frac{8^{-4}}{8^2}$$

$$\frac{1}{8^6}$$

$$8. \frac{y^3}{y^5}$$

$$\frac{1}{y^2}$$

$$9. \left(\frac{2}{3}\right)^3$$

$$\frac{2^3}{3^3}$$

$$10. \left(\frac{4}{5}\right)^{-3}$$

$$\frac{5^3}{4^3}$$

$$11. \left(\frac{x}{3}\right)^{-2}$$

$$\frac{3^2}{x^2}$$

$$12. \left(\frac{3x}{4}\right)^3$$

$$\frac{3^3 x^3}{4^3}$$

$$13. (4xy)^3$$

$$4^3 x^3 y^3$$

$$14. (5x^3y)^2$$

$$5^2 x^6 y^2$$

$$15. \left(\frac{6x}{7y}\right)^{-3}$$

$$\frac{7^3 y^3}{6^3 x^3}$$

Simplify the expression.

$$25. \frac{x^8}{x^4}$$

$$x^4$$

$$26. \frac{y^4}{y^{-7}}$$

$$y^{11}$$

$$27. \frac{4x^5}{16x^3}$$

$$\frac{x^2}{4}$$

$$28. \frac{49x^4}{7x^8}$$

$$\frac{7}{x^4}$$

$$29. \frac{8x^3y^3}{3x^1y^3}$$

$$\frac{8x^2}{3}$$

$$30. \frac{16q^0r^{-6}}{4q^{-3}r^{-7}}$$

$$4q^3r$$

$$31. \frac{12a^{-3}b^9}{21a^2b^{-5}}$$

$$\frac{4b^{14}}{7a^5}$$

$$32. \frac{8e^{-4}f^{-2}}{18ef^{-5}}$$

$$\frac{4f^3}{9e^3}$$

$$33. \frac{x^5y^{-8}}{x^5y^{-6}}$$

$$\frac{1}{y^2}$$

$$34. \left(\frac{x}{7}\right)^{-3}$$

$$\frac{7^3}{x^3}$$

35. $(4^0 w^2)^{-5}$

$$\frac{1}{w^{10}}$$

36. $(3s^3)^6$

$$3^6 s^{18}$$

37. $(7c^7 d^2)^{-2}$

$$\frac{1}{7^2 c^{14} d^4}$$

38. $(5g^4 h^{-3})^{-3}$

$$\frac{h^9}{5^3 g^{12}}$$

39. $(5x^{-2})^2$

$$\frac{5^2}{x^4}$$

40. $(y^4 z^2)(y^{-3} z^{-5})$

$$\frac{y^1}{z^3}$$

41. $(2m^3 n^2)(8m^4 n^3)$

$$16m^7 n^5$$

42. $(5x^2)^2 (3x)^2$

$$5^2 3^2 x^6$$

43. $(2x^3)^3 (4x)^{-1}$

$$\frac{2^3 x^9}{4} = 2x^8$$

1. You start an account with \$500 and an interest rate of 6% compounded yearly. How much is in the account after 3 years?

$$= \$595.51$$

2. From 2000 - 2010 a city had a 2.5% annual decrease in population. If the city had 2,950,000 people in 2000, determine the city's population in 2008.

$$= 2,409,122 \text{ people}$$

3. You buy a car for \$8000 that depreciates at a rate of 11% a year. How much is the care worth after 5 years?

$$= \$4467.25$$

4. You start an account with \$2500 and an interest rate of 6.5% compounded yearly. How much is in the account after 7 years?

$$= \$3884.97$$

5. A newly hatched channel catfish typically weighs about 0.06 gram. During the first 6 weeks of life, its weight increases by about 10% each day. Write a function to model the situation. How much does the catfish weigh after 6 weeks?

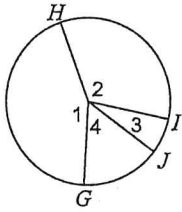
$$= 3.29 \text{ lbs}$$

Circles Quiz Review

© 2012 Kuta Software LLC. All rights reserved.

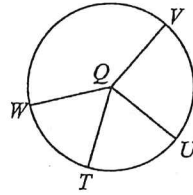
Name the arc made by the given angle.

1) $\angle 2$



- A) \widehat{IJ}
- B) \widehat{GIH}
- C) \widehat{GJ}
- D) \widehat{HI}**

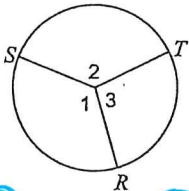
2) Major arc for $\angle UQT$



- A) \widehat{VT}
- B) \widehat{WVT}
- C) \widehat{WVU}
- D) \widehat{UWT}**

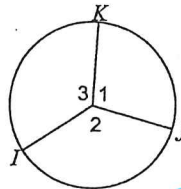
Name the central angle of the given arc.

3) \widehat{RTS}



- A) $\angle 2$**
- B) $\angle 3$
- C) $\angle 1$

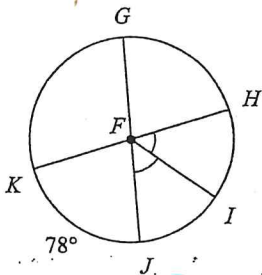
4) \widehat{KJ}



- A) $\angle 3$
- B) $\angle 1$**
- C) $\angle 2$

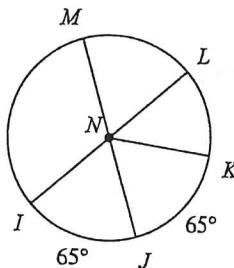
Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

5) $m\angle IFJ$



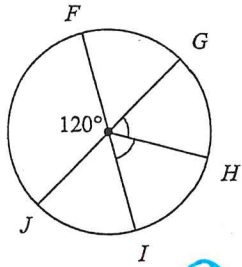
- A) 42°
- B) 51°**
- C) 49°
- D) 85°

6) $m\angle KNI$



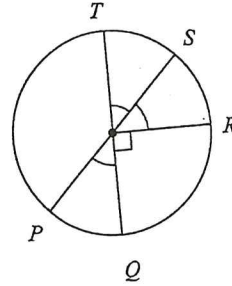
- A) 85°
- B) 44°
- C) 67°
- D) 130°**

7) $m\widehat{GIF}$



- A) 76° **B) 300°**
 C) 125° D) 124°

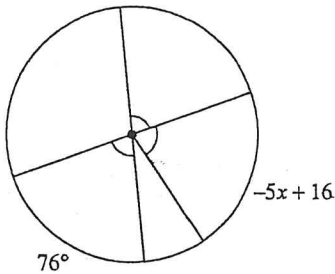
8) $m\widehat{QPS}$



- A) 53° B) 128°
C) 225° D) 108°

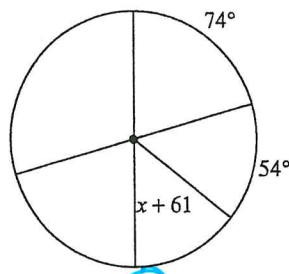
Solve for x . Assume that lines which appear to be diameters are actual diameters.

9)



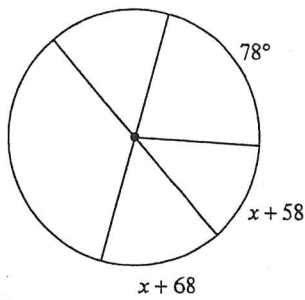
- A) 8 B) 5
C) -12 D) 7

10)



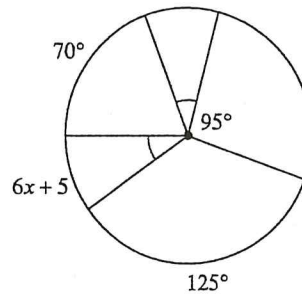
- A) 4 **B) -9**
 C) 7 D) 2

11)



- A) -12** B) 11
 C) 7 D) 8

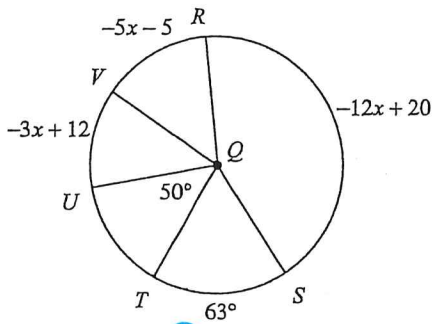
12)



- A) 8 B) 11
 C) 3 **D) 5**

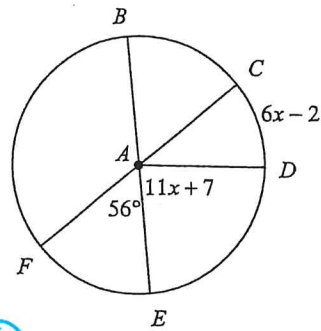
Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

13) $m\angle VQR$



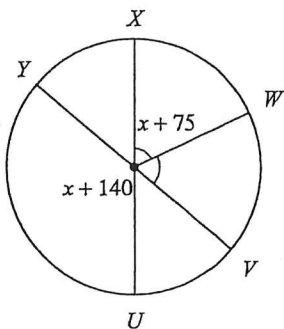
- A) 51°
 B) 50°
 C) 144°
 D) 45°

14) $m\angle CAD$



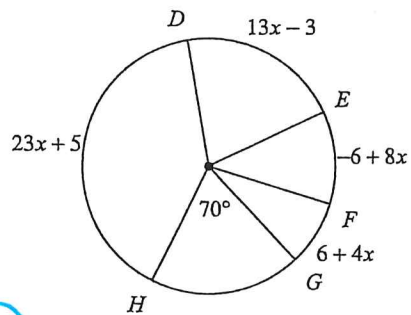
- A) 40°
 B) 45°
 C) 87°
 D) 96°

15) $m\widehat{WV}$



- A) 62°
 B) 80°
 C) 76°
 D) 65°

16) $m\widehat{DE}$



- A) 75°
 B) 73°
 C) 86°
 D) 63°

GUIDED PRACTICE *Circled Problems only*

Vocabulary Check ✓

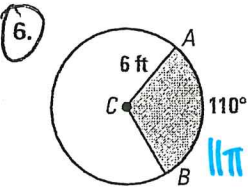
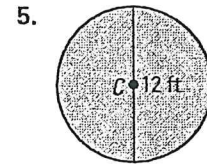
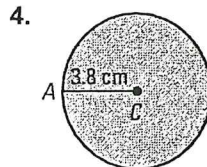
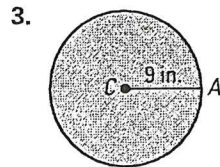
1. Describe the boundaries of a *sector of a circle*.

Concept Check ✓

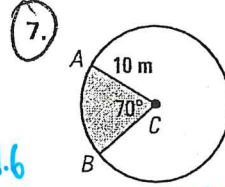
2. In Example 5 on page 693, explain why the expression $\pi \cdot \left(\frac{1}{2} \cdot 4\right)^2$ represents the area of the circle cut from the wood.

Skill Check ✓

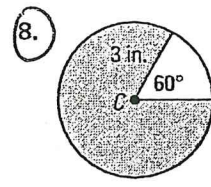
In Exercises 3–8, find the area of the shaded region.



$11\pi = 34.6$



$19.4\pi = 61.1$



$75\pi = 23.6$

9. **PIECES OF PIZZA** Suppose the pizza shown is divided into 8 equal pieces. The diameter of the pizza is 16 inches. What is the area of one piece of pizza?

25.1 in.

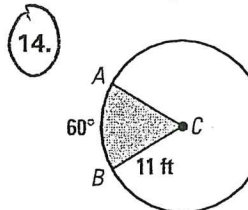
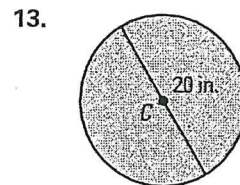
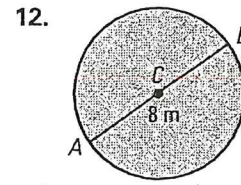
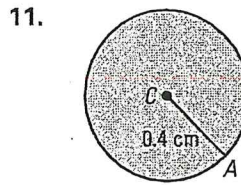
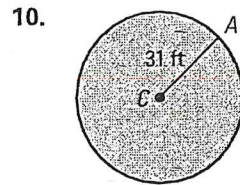


PRACTICE AND APPLICATIONS

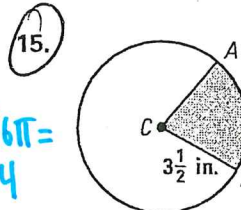
STUDENT HELP

Extra Practice to help you master skills is on p. 824.

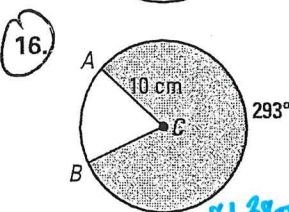
FINDING AREA In Exercises 10–18, find the area of the shaded region.



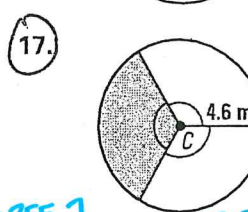
$20.16\pi = 63.4$



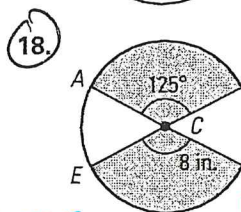
$2.72\pi = 8.6$



$81.39\pi = 255.7$



$7.053\pi = 22.2$



$44.9\pi = 139.6$

STUDENT HELP

HOMEWORK HELP

- Example 1: Exs. 10–13, 19, 20
- Example 2: Exs. 14–18, 21, 22, 29
- Example 3: Exs. 14–18, 21, 22, 29
- Example 4: Exs. 23–28, 35–37
- Example 5: Exs. 23–28, 35–37
- Example 6: Exs. 38–40

19. USING AREA What is the area of a circle with diameter 20 feet?

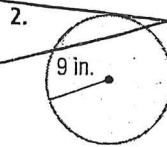
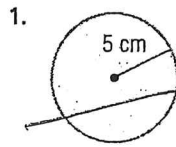
20. USING AREA What is the radius of a circle with area 50 square meters?

CHECK Your Understanding

All

Examples 1, 2
(pp. 589–590)

Find the area of each circle. Round to the nearest tenth.



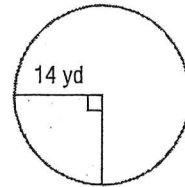
3. diameter = 16 m

4. diameter = 13 ft

Example 3
(p. 590)

5. **MULTIPLE CHOICE** Kenneth draws the circle shown at the right. He shades one region of the circle. What is the approximate area of the sector?

- A 88 yd^2 C 310 yd^2
 B 154 yd^2 D 615 yd^2

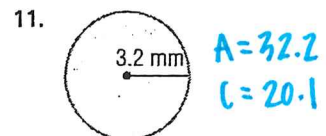
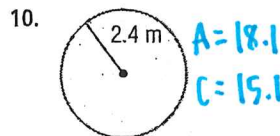
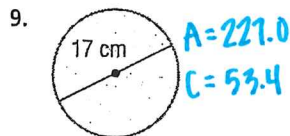
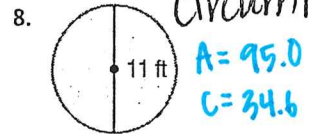
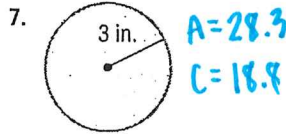
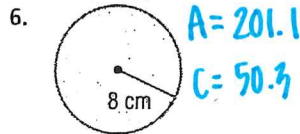


Practice and Problem Solving

HOMEWORK HELP	
For Exercises	See Examples
6–7, 10–11, 14–15, 19	1
8–9, 12–13, 16–18	2
36–38	3

Find the area of each circle. Round to the nearest tenth.

Find the Circumference



12. diameter = 8.4 m 13. diameter = 12.6 cm 14. radius = $4\frac{1}{2}$ in.

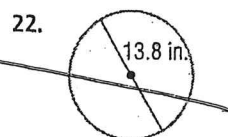
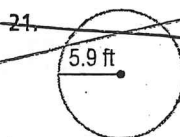
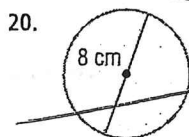
15. radius = $3\frac{3}{4}$ ft 16. diameter = $9\frac{1}{4}$ mi 17. diameter = $20\frac{3}{4}$ yd

18. **PATCHES** Find the area of the Girl Scout patch shown if the diameter is 1.25 inches. Round to the nearest tenth. 1.2 in^2



19. **TOOLS** A sprinkler that sprays water in a circular area can be adjusted to spray up to 30 feet. To the nearest tenth, what is the maximum area of lawn that can be watered by the sprinkler? 2827.4 ft^2

ESTIMATION Estimate to find the approximate area of each circle.



Practice and Applications

EVENS

Extra Practice

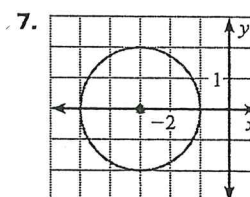
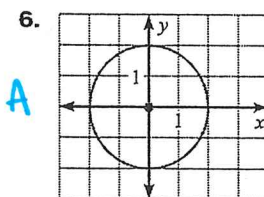
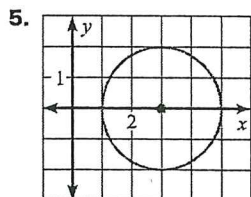
See p. 696.

Matching Equations Match each graph with its equation.

A. $x^2 + y^2 = 4$

B. $(x - 3)^2 + y^2 = 4$

C. $(x + 3)^2 + y^2 = 4$



Student Help

CLASSZONE.COM

HOMEWORK HELP

Extra help with problem solving in Exs. 8–15 is at classzone.com

Using Standard Equations Give the radius and the coordinates of the center of the circle with the given equation. Then graph the circle.

8. $x^2 + y^2 = 36$ (0,0) r=6

9. $x^2 + y^2 = 1$

10. $(x - 2)^2 + (y - 6)^2 = 49$ (2,6) r=7

11. $(x - 4)^2 + (y - 3)^2 = 16$

12. $(x - 5)^2 + (y - 1)^2 = 25$ (5,1) r=5

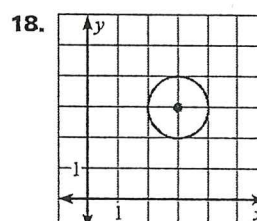
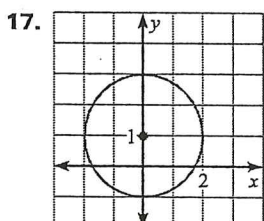
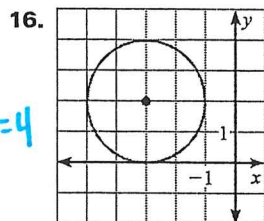
13. $(x + 2)^2 + (y - 3)^2 = 36$

14. $(x - 2)^2 + (y + 5)^2 = 4$ (2,-5) r=2

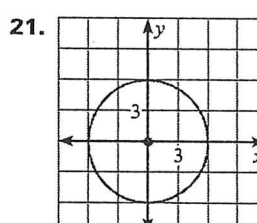
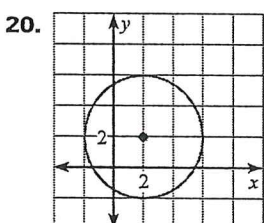
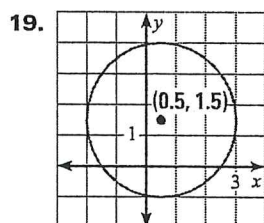
15. $x^2 + (y - 5)^2 = 64$

Using Graphs Give the radius and the coordinates of the center of the circle. Then write the standard equation of the circle.

(-3,2) r=2
 $(x+3)^2 + (y-2)^2 = 4$



(3,3) r=1
 $(x-3)^2 + (y-3)^2 = 1$



$(x-2)^2 + (y-2)^2 = 16$

Homework Help

Example 1: Exs. 5–7, 21

Example 2: Exs. 5–7, 16–27

Example 3: Exs. 8–15

Writing Equations Write the standard equation of the circle with the given center and radius.

22. center (0, 0), radius 10

23. center (4, 0), radius 4

24. center (3, -2), radius 2

25. center (-1, -3), radius 6

26. center (-3, 5), radius 3

27. center (1, 0), radius 7

22. $x^2 + y^2 = 100$

24. $(x-3)^2 + (y+2)^2 = 4$

26. $(x+3)^2 + (y-5)^2 = 9$

DISTANCE PROBLEM REVIEW

Distance Formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Find the distance between each pair of points.

21. L(-7, 0), Y(5, 9)

$d = 15$

22. U(1, 3), B(4, 6)

$d = 4.24$

23. V(-2, 5), M(0, -4)

$d = 9.22$

Find the midpoints for the following sets of ordered pairs. Then plot the midpoints on the graph below and connect them in the order of the problem numbers. You will reveal a mathematical symbol that was introduced in 1525 in a book about algebra titled *Die Coss*.

$$\text{midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

1. (-8, 3) and (-2, -5) $(-5, -1)$

2. (-5, 3) and (-3, -3) $(-4, 0)$

3. (-10, -6) and (2, 2) $(-4, -2)$

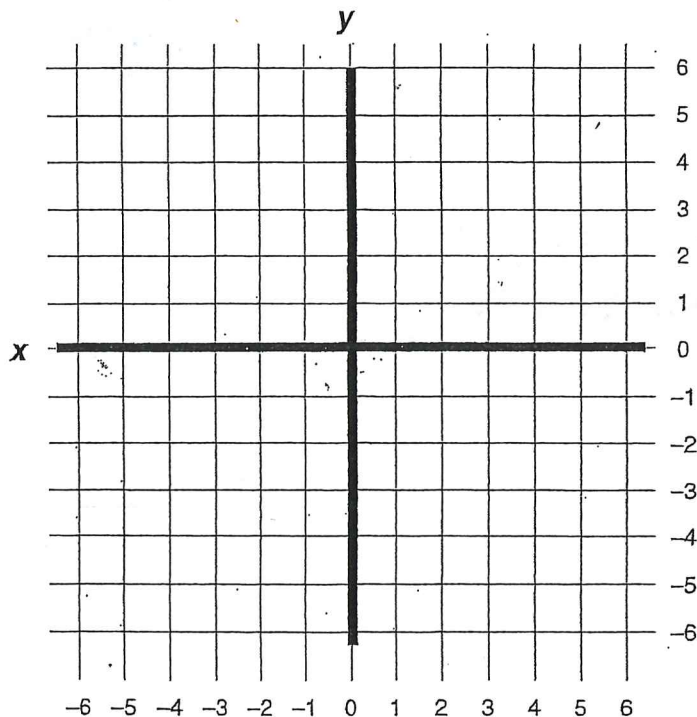
4. (-2, 5) and (-4, -5) $(-3, 0)$

5. (8, 1) and (-12, 3) $(-2, 2)$

6. (7, -3) and (-7, 7) $(0, 2)$

7. (1, -8) and (3, 12) $(2, 2)$

8. (6, -4) and (2, 8) $(4, 2)$



Find the distance between the points in problems 1-4 above.

1. 10

2. 6.3

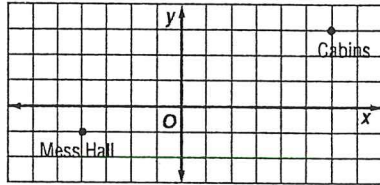
3. 14.4

4. 10.2

WORD PROBLEMS

1.

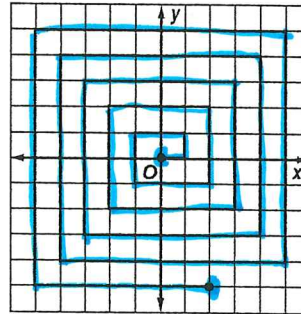
CAMPGROUND Troop 175 is designing their new campground by first mapping everything on a coordinate grid. They have found a location for the mess hall and for their cabins. They want the bathrooms to be halfway between these two. What will be the coordinates of the location of the bathrooms?



(1,1)

2.

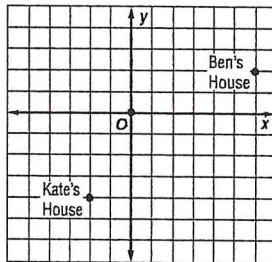
SPIRALS Caroline traces out the spiral shown in the figure. The spiral begins at the origin. What is the shortest distance between Caroline's starting point and her ending point?



(5,4)

3.

MAPPING Ben and Kate are making a map of their neighborhood on a piece of graph paper. They decide to make one unit on the graph paper correspond to 100 yards. First, they put their homes on the map as shown below.



a. How many yards apart are Kate's and Ben's homes?

10

