

## Practice 52

### Geometry and Algebra

Lessons 13-1 through 13-5

Complete.

1. The circle with equation  $(x + 5)^2 + (y - 8)^2 = 81$  has center \_\_\_\_\_ and radius \_\_\_\_\_.

2. If  $A = (4, 5)$  and  $B = (-2, 6)$ , then  $\overrightarrow{AB} =$  \_\_\_\_\_ and  $|\overrightarrow{AB}| =$  \_\_\_\_\_.

3. The vectors  $(3, 12)$  and  $(2, x)$  are parallel. Find the value of  $x$ . \_\_\_\_\_

4. The vectors  $(6, z)$  and  $(-2, 4)$  are perpendicular. Find the value of  $z$ . \_\_\_\_\_

Find each vector sum.

5.  $(8, 2) + (-6, 5)$  \_\_\_\_\_

6.  $(-5, -4) + (6, 9)$  \_\_\_\_\_

7.  $2(3, 1) + (4, -3)$  \_\_\_\_\_

8.  $3(-1, 4) + 2(3, 2)$  \_\_\_\_\_

Find the coordinates of the midpoint of the segment that joins the given points.

9.  $(-6, 8)$  and  $(6, 4)$  \_\_\_\_\_

10.  $(3, -7)$  and  $(5, -3)$  \_\_\_\_\_

11.  $(2, 0)$  and  $(7, 3)$  \_\_\_\_\_

12.  $(8, -5)$  and  $(4, -7)$  \_\_\_\_\_

In Exercises 13–17 point  $R$  has coordinates  $(6, 4)$  and point  $S$  has coordinates  $(-4, -2)$ .

13. Find the coordinates of the midpoint of  $\overline{RS}$ . \_\_\_\_\_

14. Find the distance from  $R$  to  $S$ . \_\_\_\_\_

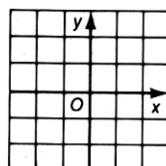
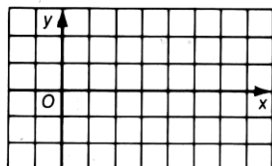
15. Find an equation of the circle that has  $\overline{RS}$  as a diameter.  
\_\_\_\_\_

16. Find the slope of a line perpendicular to  $\overrightarrow{RS}$ . \_\_\_\_\_

17. Find the slope of a line parallel to  $\overrightarrow{RS}$ . \_\_\_\_\_

18. Draw an arrow to represent the vector  $\frac{1}{2}(8, -2)$ .

19. Sketch the circle with equation  $x^2 + (y - 1)^2 = 1$ .



2)	3)	4)
5)	6)	7)
8)	9)	10)
11)	12)	13)
14)	15)	16-17)