Name

4-9B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 293–297 for objectives.

VOCABULARY

Fill in the Blanks In 1 and 2, two lines r and s have slopes g and h, respectively.

1. If $gh = -1$, then r and s are _____.

2. If r and s are parallel, then g and h are _____.

Fill in the Blanks In 3 and 4, fill in the blanks to complete each statement.

3. If $y = -\frac{2}{3}x + 7$ is perpendicular to $y = mx - 5$, $m =$ _____.

4. If $x = 4.17$ is perpendicular to $y = ax + b$, $a =$ _____.

SKILLS Objective D

In 5–17, find an equation for the line meeting the given description.

5. perpendicular to $y = 2x - 5$ with a y-intercept of -1 _____

6. perpendicular to $y = -x + 7$ and containing $(4, 1)$ _____

7. perpendicular to $y = 17$ and containing $(5.9, 2)$ _____

8. perpendicular to $x = 12$ and containing $(5, \pi)$ _____

9. containing $(0, 0)$ and perpendicular to the line through $(-6, 8)$ and $(6, -8)$ _____

10. perpendicular to $2x - 7y = 21$ with a y-intercept of 6 _____

11. perpendicular to $y = -\frac{2}{3}x$ and containing $(0, 0)$ _____

12. perpendicular to $y = 3$ and containing $(5, 9)$ _____

13. perpendicular to $x = -1$ and containing $(\sqrt{7}, -1)$ _____

14. containing $(-1, 7)$ and perpendicular to the line through $(-2, -2)$ and $(-5, 1)$ _____

15. perpendicular to $x + 4y = 8$ and containing $(5, 5)$ _____

16. the perpendicular bisector of $\overline{LM}$ where $L = (-3, 4)$ and $M = (1, -4)$ _____

17. the perpendicular bisector of $\overline{XY}$ where $X = (2, 5)$ and $Y = (1, 2)$ _____

Name

In 18–23, find an equation of the perpendicular bisector of the line segment with the given endpoints.

18. $(-3, 2), (3, -2)$ _____

19. $(8, 16), (24, -12)$ _____

20. $(4, -2), (6, 6)$ _____

21. $(10, 11), (-4, -3)$ _____

22. $(0, 0), (3, 3)$ _____

23. $(2, 5), (2, -9)$ _____

PROPERTIES Objective H

In 24–29, determine whether the two lines are *parallel*, *perpendicular*, or *neither*.

24. Line c has slope $-\frac{2}{3}$ and line d has slope $\frac{2}{3}$. _____

25. Line n is vertical and line p has slope zero. _____

26. Line q has slope 0.5 and line r has slope 2. _____

27. Line x has slope $\frac{1}{4}$ and line y has slope 0.25 _____

28. Line e is horizontal and line f is vertical. _____

29. Line s has slope $\frac{1}{5}$ and line t has slope 5. _____

30. M is a matrix representing a line that does not contain the origin. Determine whether each matrix operation results in a matrix representing a line *parallel* to M, *perpendicular* to M, or *neither*.

a. $\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix} M$ _____

b. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} M$ _____

c. $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix} M$ _____

d. $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix} M$ _____

e. $\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix} M$ _____

f. $\begin{bmatrix} 0 & 0 \\ -1 & 1 \end{bmatrix} M$ _____