NAME Key DATE PERIOD

Chapter 3 Sample Test *(continued)*

Skip 11 and 12!

For Questions 13-16, use the matrices to find the following.

$P = \begin{bmatrix} 3 & 1 \\ -4 & 0 \end{bmatrix}$ $Q = \begin{bmatrix} 0 & -0.25 \\ 1 & 0.75 \end{bmatrix}$ $R = \begin{bmatrix} 4 & -5 & 2 \\ 8 & -1 & 3 \end{bmatrix}$ $S = \begin{bmatrix} 3 & 1 \\ 0 & 2 \\ -4 & 5 \end{bmatrix}$

13. the first row of RS

F [20 −16 9] **G** [20 24] **H** [4 4] **J** not possible

14. the first row of $5P - 4Q$

A [15 6] **B** [15 4] **C** [19 9] **D** not possible

15. the inverse of matrix Q

F P **G** S **H** R **J** not possible

16. the determinant of P

A 8 **B** 4 **C** −4 **D** 0

17. Evaluate $\begin{vmatrix} 2 & -3 & 1 \\ 4 & 0 & -2 \\ 5 & -1 & 6 \end{vmatrix}$ using diagonals.

F −38 **G** 94 **H** −42 **J** 114

18. Cramer's Rule is used to solve the system of equations $5f - 9g = 10$ and $4f + 3g = -6$. Which determinant represents the numerator for f?

A $\begin{vmatrix} 10 & 9 \\ -6 & 3 \end{vmatrix}$ **B** $\begin{vmatrix} 5 & -9 \\ 4 & 3 \end{vmatrix}$ **C** $\begin{vmatrix} 5 & 10 \\ 4 & 6 \end{vmatrix}$ **D** $\begin{vmatrix} -9 & 10 \\ 3 & -6 \end{vmatrix}$

19. Which product would be used to solve the matrix equation $\begin{vmatrix} 7 & -3 \\ 1 & 1 \end{vmatrix} \cdot \begin{vmatrix} m \\ n \end{vmatrix} = \begin{vmatrix} 2 \\ 6 \end{vmatrix}$ by using inverse matrices?

F $\begin{vmatrix} 1 & 3 \\ 1 & 7 \end{vmatrix} \cdot \begin{vmatrix} 2 \\ 6 \end{vmatrix}$ **G** $\frac{1}{10}\begin{vmatrix} 1 & 3 \\ -1 & 7 \end{vmatrix} \cdot \begin{vmatrix} 2 \\ 6 \end{vmatrix}$ **H** $\frac{1}{10}\begin{vmatrix} 7 & -3 \\ 1 & 1 \end{vmatrix} \cdot \begin{vmatrix} 2 \\ 6 \end{vmatrix}$ **J** $\begin{vmatrix} 7 & -3 \\ 1 & 1 \end{vmatrix} \cdot \begin{vmatrix} 2 \\ 6 \end{vmatrix}$

Bonus Find the value of $\begin{vmatrix} -a & b & -c \\ a & -b & c \\ a & 1 & 1 \end{vmatrix}$.

11. ___

12. ___

13. H

14. A

15. F

16. B

17. G

18. B

19. G

B: ?

NAME Key DATE PERIOD

Chapter 3 Sample Test

SCORE

Write the letter for the correct answer in the blank at the right of each question.

1. The system of equations $y = 2x - 3$ and $y = 4x - 3$ has
A exactly one solution. **C** infinitely many solutions.
B no solution. **D** exactly two solutions. **1.** A

Choose the correct description of each system of equations.
F consistent and independent **H** consistent and dependent
G inconsistent **J** inconsistent and dependent **2.** F

2. $x + 2y = 7$
$3x - 2y = 5$

3. $2x + 3y = 10$
$4x + 6y = 20$ **3.** H

4. The first equation of the system is multiplied by 2. By what number would you multiply the second equation to eliminate the x variable by adding?

$6x - 5y = 21$
$4x + 7y = 15$

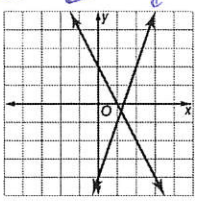
A 3 **B** –3 **C** 2 **D** –2 **4.** B

5. The first equation of the system is multiplied by 4. By what number would you multiply the second equation to eliminate the y variable by adding?

$2x + 5y = 16$
$8x - 4y = 10$

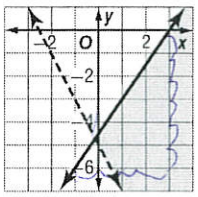
F 5 **G** –5 **H** 2 **J** –2 **5.** F

6. Which system of equations is graphed?



A $2x + y = 2$
$-3x - y = 4$
B $2x + y = -2$
$3x - y = 4$
C $2x + y = 2$
$3x - y = 4$
D $2x + y = -2$
$-3x - y = 4$ **6.** C

7. Which system of inequalities is graphed?



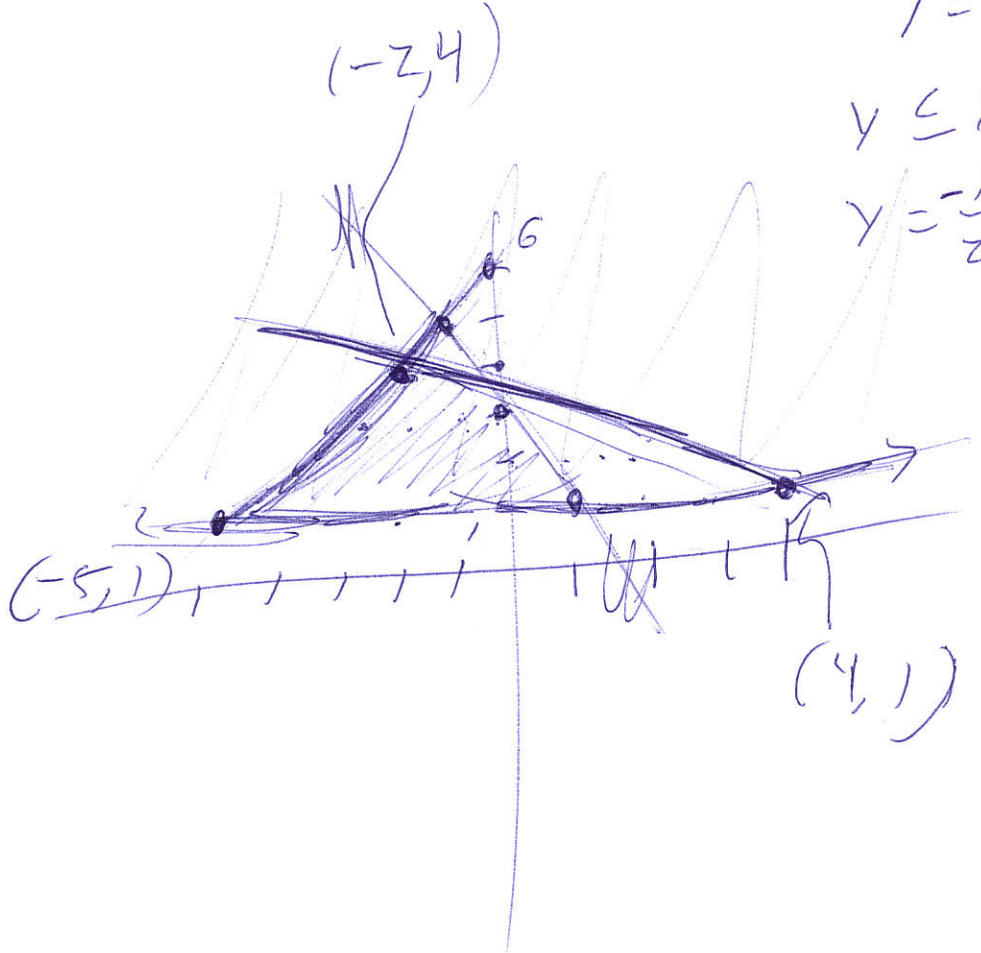
F $2x + y \geq 5$
$3x + 2y \leq 9$
G $2x + y > -5$
$3x - 2y \geq 9$
H $2x - y \leq 5$
$3x + 2y < 9$
J $-2x + y > 5$
$3x - 2y \leq 9$ **7.** G

For Questions 8-10, use the system of inequalities $y \geq 1$, $y - x \leq 6$, and $x + 2y \leq 6$.

8. Find the coordinates of the vertices of the feasible region.
A (–6, 0), (–2, 4), (6, 0) **C** (–5, 1), (–2, 4), (4, 1)
B (0, 1), (0, 3), (4, 1) **D** (–5, 1), (–2, 4), (0, 3), (0, 1) **8.** C

9. Find the minimum value of $f(x, y) = 2x + y$ for the feasible region.
F –10 **G** 0 **H** –9 **J** –4 **9.** H

10. Find the maximum value of $f(x, y) = 2x + y$ for the feasible region.
A 0 **B** 11 **C** 9 **D** 8 **10.** C



$y \geq 1$

$y \leq x+6$

$y = -\frac{1}{2}x + 3$

$f(-2,4) = -4+4 = 0$

$f(-5,1) = -10+1 = -9$

$f(4,1) = 8+1 = 9$