

Unit 2 HW 26

Name Key

Date \_\_\_\_\_

Period \_\_\_\_\_

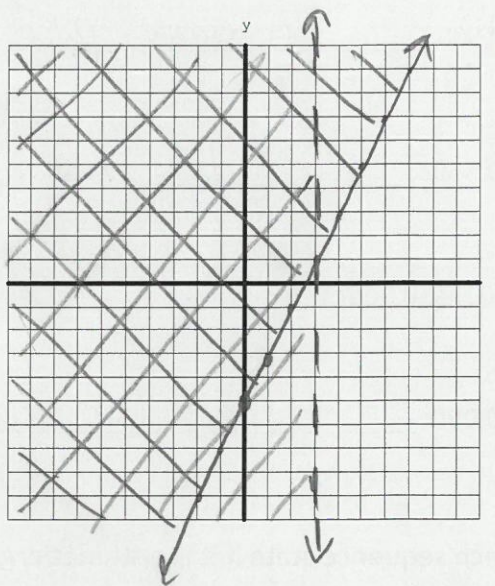
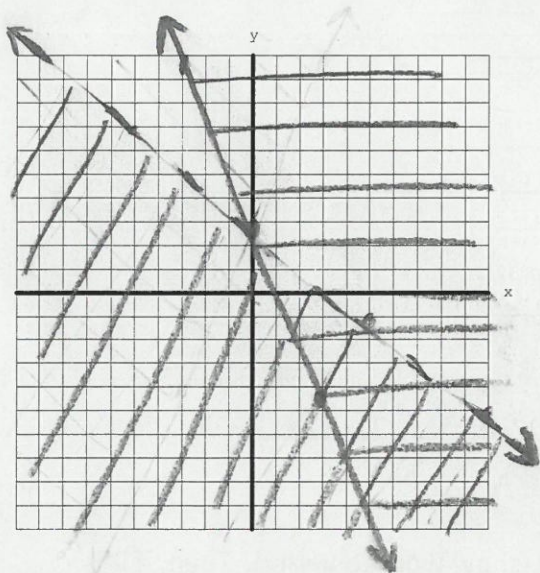
Graph the system of inequalities.

1.  $4x + 5y < 15$        $y < -\frac{4}{5}x + 3$

2.  $-2x + y \geq -5$        $y \geq 2x - 5$

$-\frac{7}{3}x - y \leq -3$        $y \geq -\frac{7}{3}x + 3$

$x < 3$



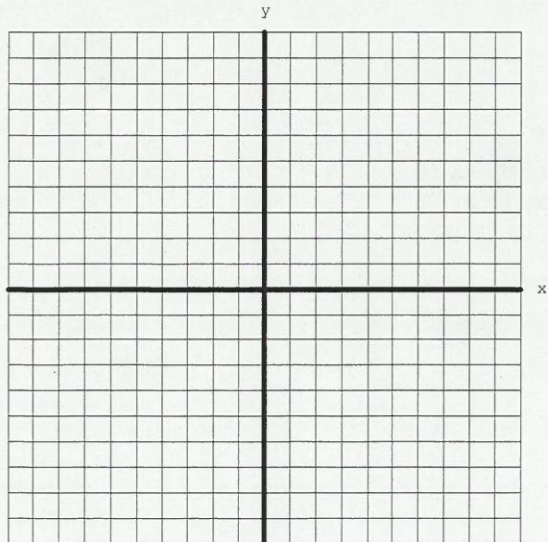
Simplify.

3.  $a^2b^3c^4 * ab^5c^2$   
 $a^3b^8c^6$

4.  $(k^5)^4(3k)^2$   
 $9k^{22}$

5.  $(3a^3b^2)^4(9ab)^2$   
 $6561a^{14}b^{10}$

6. Solve the system of equations by graphing AND substitution.



$$\begin{cases} -3x + 2y = -6 \\ y = -\frac{1}{2}x + 5 \end{cases}$$

$(4, 3)$

7. Mrs. Lucas earns a salary of \$24,000 per year plus 1.5% commission on her sales. The average price of a car is \$30,500 and "c" represents the number of cars she must sell to make an annual income of at least \$40,000. Determine what each of the following represents by using the given inequality and the context of the problem.

$$24,000 + 0.015(30,500c) \geq 40,000$$

- a. 24,000: Mrs. Lucas salary
- b. 0.015: Commission as a percent of sales
- c. 30,500: average price of a car
- d. 30,500c: total dollars in car sales
- e. 0.015(30,500c): total dollars in commission
- f. 40,000: goal for annual income

For each sequence state if it is arithmetic, geometric, or neither (show work to verify). Then, if it is arithmetic or geometric, write an equation for the sequence.

8. 1, 3, 6, 10, 15, ...

$$\begin{array}{cccc} \checkmark & \checkmark & \checkmark & \checkmark \\ +2 & +3 & +4 & +5 \end{array}$$

neither

9. 40, 43, 46, 49, 52, ...

$$\begin{array}{cccc} \checkmark & \checkmark & \checkmark & \checkmark \\ +3 & +3 & +3 & +3 \end{array}$$

arithmetic

$$a_n = 40 + 3(n-1)$$

10.  $4, \frac{13}{3}, \frac{14}{3}, 5, \frac{16}{3}, \dots$

$$\begin{array}{cccc} \checkmark & \checkmark & \checkmark & \checkmark \\ +\frac{1}{3} & +\frac{1}{3} & +\frac{1}{3} & +\frac{1}{3} \end{array}$$

$$a_n = 4 + \frac{1}{3}(n-1)$$

11. -4, 12, -36, 108, -324

$$\begin{array}{cccc} \checkmark & \checkmark & \checkmark & \checkmark \\ \times -3 & \times -3 & \times -3 & \times -3 \end{array}$$

$$a_n = -4(-3)^{n-1}$$