Algebra 1 Review Name_____

2019 Summer Preparation for Algebra 2 and H Algebra II/Trig. Please bring all this work with you to the first day of school.

Unit 1: Equations

Simplify the expression.

1) $-5(-1 + p) - 7p$

Evaluate each expression.

2) $(3 \div -3 + 2) \cdot (-2 + 5) \cdot -5$

Solve each equation.

3) $104 = -8(x - 5)$

4) $-4(7 - 6m) = -28 - 8m$

5) A passenger train left Berlin and traveled toward the fueling station. A cattle train left four hours later traveling at 55 mph in an effort to catch up to the passenger train. After traveling for seven hours the cattle train finally caught up. Find the passenger train's average speed.

Solve the proportion.

6) $\frac{5}{9} = \frac{n+5}{5}$

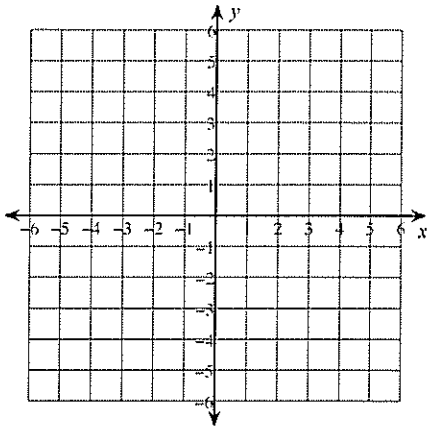
Solve the equation.

7) $|n+4|=5$

Unit 3 Functions

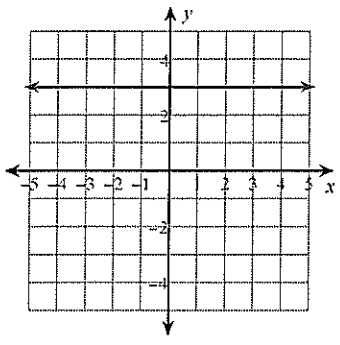
Sketch the graph of the line.

8) $6x - y = -3$



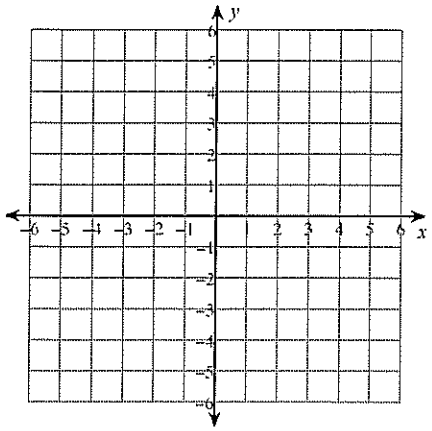
Write the standard form of the equation of the line.

9)



Sketch the graph of the linear inequality.

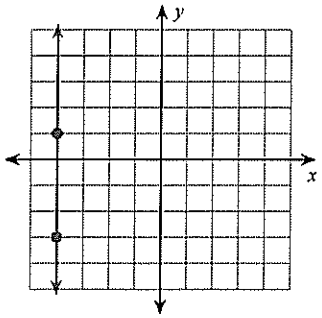
10) $y \geq 2x + 3$



Unit 4 Linear Functions

Find the slope of the line.

11)



Find the slope of the line through the pair of points.

12) $(-3, -8), (-10, 14)$

Find the slope of the line.

13) $x = -1$

Find the slope of a line parallel to the given line.

14) $x = -1$

Find the slope of a line perpendicular to the given line.

15) $y = -1$

Find the value of x or y so that the line through the points has the given slope.

16) $(x, -4)$ and $(-2, -2)$; slope: $\frac{1}{3}$

Write the slope-intercept form of the equation of the line given the slope and y-intercept.

17) Slope $= -\frac{4}{3}$, y-intercept $= -4$

Write the slope-intercept form of the equation of the line.

18) $y - 5 = -\frac{8}{5}(x + 4)$

Write the slope-intercept form of the equation of the line described.

19) through: $(-5, 5)$, parallel to $y = -\frac{6}{5}x - 3$

20) through: $(-3, 5)$, perp. to $y = x + 2$

Unit 5 Systems of Equations and Inequalities

Solve the system by graphing.

21) $y = -\frac{3}{4}x - 1$

$y = \frac{1}{2}x + 4$

Solve the system by elimination.

22) $10x - 6y = 20$

$x - 2y = -5$

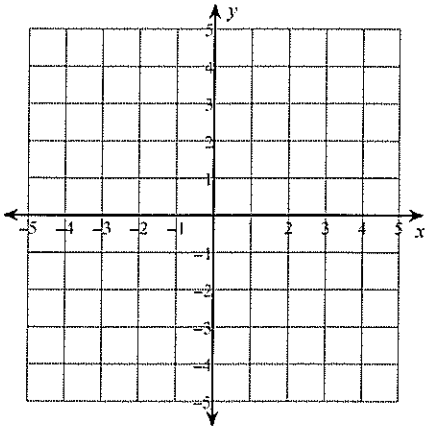
Solve the system by substitution.

23) $4x + 5y = 6$

$7x + y = -5$

Sketch the solution to each system of inequalities.

24) $y \le x - 3$
$y \ge -5x + 3$



Unit 6 Exponents and Polynomials

Simplify. Your answer should contain only positive exponents.

25) $3xy^3 \cdot 3yx^{-4}$

26) $\left(3a^{-4}b^{-3}\right)^3$

27) $\dfrac{3m^0}{3m^4n^3}$

28) $4^0 \cdot 4^{-3}$

29) 2^3

30) $\dfrac{3}{3^{-2}}$

Simplify.

31) $\sqrt{125}$

32) $\sqrt{343}$

33) $\sqrt{98}$

34) $\sqrt{96}$

Simplify each radical expression.

35) $\sqrt{20x^2y}$

36) $\sqrt{98b^4}$

Name each polynomial by degree and number of terms.

37) $9a^2 + 8a$

Simplify each expression.

38) $(3 + 6r^4 - 8r^2) + (3r^4 - 3r^3 + 2r^2)$

39) $(4 + 8r + 5r^4) + (5 - 7r - 6r^4)$

Find each product.

40) $(x - 1)(8x + 8)$

41) $(5n - 8)(8n^2 + n - 8)$

42) $2b^2(b-5)$

43) $(3+8x)(3-8x)$

44) $(8n+2)(8n-2)$

Unit 7 Factoring Polynomials

Factor the common factor out of the expression.

45) $9x^4 + 6x^2 + 6x$

Factor each completely.

46) $2x^2 + 8x$

47) $n^2 - 7n - 18$

Solve the equation by factoring.

48) $r^2 = 42 - r$