Summer Review Packet

CONCEPT 1: Solve Linear Equations
Solve each equation for x. Show all work.

1) \( 16 = b - 4 + 3b \) 
2) \( 6 + 3a - 6 = -18 \)

3) \( 11 = v + 6 - 2v \) 
4) \( 33 - 3n = 3(n + 3) + 6 \)

5) \( 27 - 8n = 5(1 - 6n) \) 
6) \( 4 + 6(r - 6) = -34 + 6r \)

7) \( -4(6r + 9) = 3(6 - 5r) \) 
8) \( 4(1 - 2x) - 7 = -(x - 11) \)

9) \( -5(4 + 9b) = -4(5 + 9b) - 3b \)

CONCEPT 2: Solve linear inequalities and graph the solution. Solve each inequality and graph its solution.

Solve each inequality and graph its solution.

10) \( 12 \leq 4m + 2m \) 
11) \( 16 < 3b + b \)
Solve each equation. 

16) \( |x + 4| = 4 \)

17) \( |-5p + 7| = 33 \)

18) \( \frac{|3b - 10|}{3} = -5 \)

Solve each inequality and graph its solution. 

19) \( |a - 1| \geq 6 \)

20) \( |5k - 1| \leq 9 \)
CONCEPT 4: Find the Slope given two points.  
Find the slope of the line through each pair of points.

22) \((16, -17), (-11, 0)\)
23) \((8, -11), (6, -13)\)

24) \((0, 7), (6, 3)\)
25) \((13, -1), (11, -1)\)

26) \((0, -14), (20, 17)\)
27) \((4, 9), (-14, -5)\)

CONCEPT 5: Write equations for lines.  
Write the slope-intercept form of the equation of each line given the slope and y-intercept.

28) Slope = 0, y-intercept = -5
29) Slope = -2, y-intercept = 2

Write the slope-intercept form of the equation of the line through the given points.

30) through: \((-4, -3)\) and \((0, 3)\)
31) through: \((1, -2)\) and \((4, -4)\)
Write the slope-intercept form of the equation of the line through the given point with the given slope.

32) through: (1, 5), slope = 6

33) through: (4, -3), slope = -2

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

34) \( x - y = 5 \)

35) \( 11x - 4y = -32 \)

Sketch the graph of each line.

36) \( y = 2x - 5 \)

37) \( y = 7x - 2 \)
38) \( y = -\frac{6}{5}x - 4 \)

39) \( x\)-intercept = -3, \( y\)-intercept = 2

40) \( x\)-intercept = -5, \( y\)-intercept = -5

41) \( 9x + 2y = 8 \)
CONCEPT 6: Evaluating expressions with Rational numbers.
Evaluate each expression.

45) \(18 - (-9) - 40\)

46) \((-9) + 39 - 9\)
Find each quotient.

47) $15 \div 3$

48) $-154 \div -11$

49) $24 \div 6$

50) $100 \div 10$

Find each product.

51) $(-19)(-17)$

52) $(8)(-19)$

Evaluate each expression.

53) $4 \times (-7)((-5) - (-4))$

54) $\frac{5 \times 2}{3 - 8}$

CONCEPT 7: Simplify Rational expressions.

Simplify each expression.

55) $\frac{4}{5} + \frac{b - 6}{b + 3}$

56) $\frac{6}{4} - \frac{3}{2b + 2}$

57) $\frac{11m}{8m} \cdot \frac{13m}{10m^3}$

58) $\frac{3n^3}{2} \cdot \frac{20}{13}$
CONCEPT 8: Proportions.
Solve each proportion.

61) \( \frac{11}{n} = \frac{7}{8} \)

62) \( \frac{b}{5} = -\frac{11}{9} \)

63) \( \frac{9}{7} = \frac{n}{9} \)

CONCEPT 9: Combining like terms.
Simplify each expression.

64) \( 9r - 2 + 3 \)

65) \( 2k - 7 + k - 2 \)

66) \( -5 + 8(v - 8) \)

67) \( -3(1 - 3v) - 6 \)

68) \( 6(2 - 8x) + 2(x - 6) \)

69) \( -(1 - 2n) - 5(6n + 2) \)