Name: _____ Date: _____ Period _____

Unit 2 Test Review

Properties:

Equation	Steps
3x + (x – 8) = 12	Original Equation
4x – 8 = 12	Associative property of Addition
4x = 20	(1) Add. POE
X = 5	(2) Div. POE

Equation	Steps
6x + 14 = 12.8	Original Equation
6x = -1.2	(3) Subtraction POE
X = -0.2	(4) Div POE

Solve the formula for the indicated variable. Show all of your work.

5. For **r**: $V = \pi r h$

$\frac{V}{\pi h} = \frac{\pi r h}{\pi h}$

$\frac{V}{\pi h} = r$

6. For **y**: $7x + 14y = -21$

$-7x \quad -7x$

$\frac{14y}{14} = \frac{-7x}{14} - \frac{21}{14}$

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

7. For **h**: $V = \frac{1}{3}Ah$

$3V = Ah$

$\frac{3V}{A} = h$

Solve for x for each equation. Show all work.

8. $-6x + 5x = -7$

$-x = -7$

$x = 7$

9. $a - 4(3a + 6) = -112$

$a - 12a - 24 = -112$

$-11a - 24 = -112$

$-11a = -88$

$a = 8$

10. $5(1 - 6r) = -19 - 6r$

$5 - 30r = -19 - 6r$

$5 = -19 + 24r$

$24 = 24r$

$1 = r$

Solve for x for each inequality. Show all work.

11. $-7 > -8 - x + 2x$

$-7 > -8 + x$

$-15 > x$

OR

$x < -15$

12. $-90 < 6(a - 7)$

$-90 < 6a - 42$

$-48 < 6a$

$-8 < a$

OR

$a > -8$

13. $2 + 6m \le -7(-2m - 6)$

$2 + 6m \le 14m + 42$

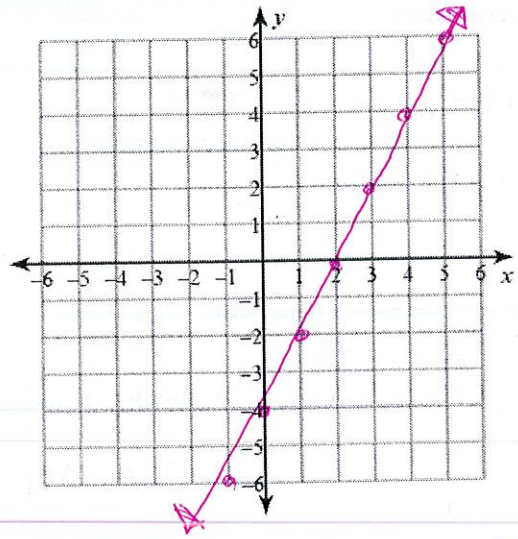
$6m \le 14m + 40$

$-8m \le 40$

$m \ge -5$

Graph each linear equation. Identify the key characteristics for each.

14. $2x - y = 4$ $-y = -2x + 4$



Slope Intercept Form: $y = 2x - 4$

x intercept: $(2, 0)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$

f(3): 2

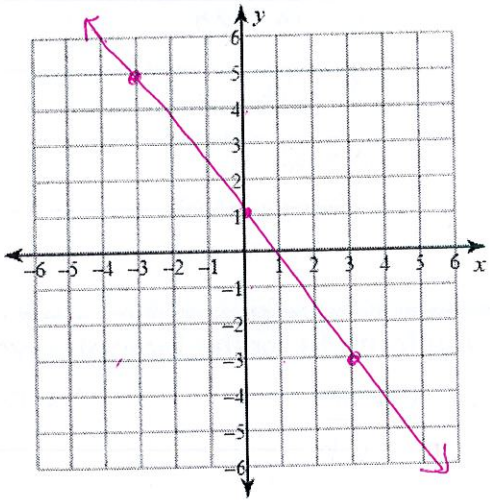
f(x) = 4 x = 4

End Behavior

$x \to \infty\ f(x) \to$ ∞

$x \to -\infty\ f(x) \to$ $-\infty$

15. $4x + 3y = 3$ $3y = -4x + 3$



Slope Intercept Form: $y = -\frac{4}{3}x + 1$

y intercept: $(0, 1)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$

f(3): -3

f(x) = 4 x = -2

End Behavior

$x \to \infty\ f(x) \to$ $-\infty$

$x \to -\infty\ f(x) \to$ ∞

Determine if the sequence is arithmetic. If it is, find the common difference.

16. -3, -23, -43, -63, …

$d = -20$

17. 9, 14, 18, 21, …

$d = 3$

Given the explicit formula, find the first 3 terms and the term named in the problem.

18. $a_n = -11 + 7n$ Find a_{34}

$a_1 = -4$
$a_2 = 3$
$a_3 = 10$

$a_{34} = -4 + 7(34-1)$
$= 227$

19. $a_n = 65 - 100n$ Find a_{39}

$a_1 = -35$
$a_2 = -135$
$a_3 = -235$

$a_{39} = -35 + -100(39-1)$
$= -3835$

Given the first term and the common difference, write the explicit or closed form.

20. $a_1 = 28,\ d = 10$

$a_n = 28 + 10(n-1)$
$= 10n + 18$

21. $a_1 = -34,\ d = -10$

$a_n = -34 - 10(n-1)$
$= -10n - 24$

Given the first term and the common difference, write the recursive formula.

22. $a_1 = 39,\ d = -5$

$a_n = a_{n-1} - 5$

23. $a_1 = -26,\ d = 200$

$a_n = a_{n-1} + 200$

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24. Write an expression to represent the total cost of x tickets to a fair discounted 30%.

$.70x$

25. Will is building a sand box for his son to play in. The length is 2 feet more than 4 times the width. The perimeter is 224 feet. Find the length and width of the sandbox. $l = 2 + 4w$

$224 = 2 + 4w + w + 2 + 4w + w$
$224 = 4 + 10w$
$220 = 10w$

$\boxed{w = 22 \text{ feet}}$
$l = 2 + 4(22)$
$\boxed{l = 90 \text{ ft}}$

26. Sara wants to have an average of at least a 90 on her tests. If she took three tests and earned a 83, 95, and 88, what is the lowest grade she has to earn on the fourth test?

$\frac{83 + 95 + 88 + x}{4} \geq 90$

$266 + x \geq 360$
$\boxed{x \geq 94}$

27. Four consecutive odd integers add up to 352. Write an equation and find the 4 numbers.

$x + x+2 + x+4 + x+6 = 352$

$4x + 12 = 352$

$4x = 340$
$x = 85$

85 87 89 91

Use the two functions given to answer the questions below. $f(x) = 2x^2 - x + 1$ $g(x) = 3x^2 + 3x - 4$

28. $f(1) + g(-2)$ 4

$2(1)^2 - (1) + 1 = 2$
$3(-2)^2 + 3(-2) - 4 = 2$

29. $f(x) - g(x)$

$2x^2 - x + 1 - (3x^2 + 3x - 4)$
$2x^2 - x + 1 - 3x^2 - 3x + 4$
$\boxed{-x^2 - 4x + 5}$

30. $2f(x) + 3g(x)$

$2(2x^2 - x + 1) + 3(3x^2 + 3x - 4)$
$4x^2 - 2x + 2 + 9x^2 + 9x - 12$
$\boxed{13x^2 + 7x - 10}$