

HOT SEAT - ALG 2 - FALL FINAL REVIEW

1) Write the explicit equation for the sequence both as Arithmetic and Geometric

4, 12, ...

2) Subtract and simplify: $\frac{1}{x-2} - \frac{2x}{(x^2-4)}$

3) Bobby has \$200 in an account to save towards a new Tesla. The Bank pays 3% interest compounded annually. Write an equation and determine how much he will have saved after 5 years.

4) Simplify $(81x^{12}y^{16})^{3/4}$

5) Write the following equation in vertex (graphing) form

$$y = x^2 + 20x + 81$$

6) Solve: $2x^2 + 9x - 18 = 0$

7) Simplify: $\frac{2x^2 - 5x - 3}{3x^2 - 10x + 3} \div \frac{4x^2 + 4x + 1}{9x^2 - 1}$

8) Simplify $\frac{7x^{-5}y^2}{x^4y^{-6}}$

9) Solve and graph the inequality on a number line

$$2(x+6) - 8 \leq -6$$

10) Solve the following algebraically

$$(x+2)^2 - 3 = x + 11$$

HOT SEAT KEY - ALG2 FAU FINAL REVIEW

1) Geo: $t(n) = 4(3)^{n-1}$ or $t(n) = \frac{4}{3}(3)^n$

Arith: $t(n) = 8n - 4$

2) $\frac{1}{x-2} \left(\frac{x+2}{x+2} \right) - \frac{2x}{(x-2)(x+2)} = \frac{x+2-2x}{(x-2)(x+2)} = \frac{-x+2}{(x-2)(x+2)}$
 $= \frac{-1(x-2)}{(x-2)(x+2)} = \boxed{\frac{-1}{x+2}}$

3) $y = 200(1.03)^t = 200(1.03)^5 =$

4) $\left(\sqrt[4]{81x^{12}y^{16}} \right)^3 = (3x^3y^4)^3 = \boxed{27x^9y^{12}}$

5) $y = (x^2 + 20x + 100) + 81 - 100$

$y = (x+10)(x+10) - 19$
 $y = (x+10)^2 - 19$

6) A.C = $2(-18) = \begin{matrix} -36 \\ 12 \quad -3 \end{matrix}$ $2x^2 + 12x - 3x - 18 = 0$
 $2x(x+6) - 3(x+6) = 0$

$(2x-3)(x+6) = 0$

$2x-3=0$
 $\boxed{x = 3/2}$

$x+6=0$
 $\boxed{x = -6}$

$$7) \quad AC = 2(-3) = -6$$

$$\begin{array}{r} -6 \quad 1 \\ \diagup \quad \diagdown \end{array}$$

$$2x^2 - 6x + 1x - 3$$

$$2x(x-3) + 1(x-3)$$

$$(2x+1)(x-3)$$

$$AC = 3 \cdot 3 = 9$$

$$\begin{array}{r} 9 \quad -1 \\ \diagup \quad \diagdown \end{array}$$

$$3x^2 - 9x - 1x + 3$$

$$3x(x-3) - 1(x-3)$$

$$(3x-1)(x-3)$$

$$\frac{(2x+1)(x-3)}{(3x-1)(x-3)} \cdot \frac{(3x-1)(3x+1)}{(2x+1)(2x+1)}$$

$$\boxed{\frac{3x+1}{2x+1}}$$

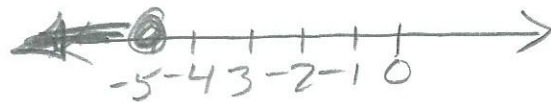
$$8) \quad \frac{7y^6 \cdot y^2}{x^4 \cdot x^5} = \frac{7y^8}{x^9}$$

$$9) \quad 2x + 12 - 8 \leq -6$$

$$2x + 4 \leq -6$$

$$2x \leq -10$$

$$x \leq -5$$



$$10) \quad (x+2)^2 - 3 = x + 11$$

$$x^2 + 4x + 4 - 3 - x - 11 = 0$$

$$x^2 + 3x - 10 = 0$$

$$(x+5)(x-2) = 0$$

$$\boxed{x = -5} \quad \boxed{x = 2}$$