

ALGEBRA 2 - CHPT 4 ROUNDS REVIEW

ROUND 1

Solve the following for x

A) $\frac{-5}{6} = \frac{x-5}{x+2}$

B) $(2x-7)(10x+5)(240x) = 0$

C) $27^{3x-2} = 9^x$

D) $2(x-4)^2 + 3 = 11$

ROUND 2

A) Solve the system of inequalities by graphing

$$y \geq (x+1)^2 - 3$$

$$y \leq x+3$$

B) For the sequence 81, 27, 9, ...
Give the next 3 terms. Write the formula for the n^{th} term. What value would the 20th term be close to?

C) A taco costs \$1 more than a bag of chips. Jason bought 3 tacos and 2 bags of chips for \$10.50. What is the price of each?

D) Solve Algebraically: $(x+5)^2 - 6 = x+1$

ROUND 3

A) Solve the inequality and show the solution on a number line:

$$5(x+7) < 4x+8$$

B) Simplify $\frac{x^2+x-12}{x-2} \div \frac{x^2+6x+8}{x^2-4}$

C) Simplify $\frac{x^2+2x-15}{x^2-6x+9} \cdot \frac{2x^2-5x-3}{x^2+3x-10}$

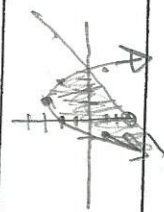

D) Solve $4|2x-5| = 20$

BONUS

Find the equation of a line passing through points $(6, -2)$ and $(10, 4)$. Also find the equation of a line perpendicular to the line through the same two points

Names of group members

KEY

	A	B	C	D	Total Points
1	$X = \frac{20}{11}$	$X = 7\frac{1}{2}$ $X = -1\frac{1}{2}$ $X = 0$	$X = 6\frac{1}{7}$	$X = 6$ $X = 2$	
2		$3, 1, \frac{1}{3}$ $f(x) = 2 + 3(\frac{1}{3})^x$ Areas zero	umps = \$10.5 Tacos = \$2.5	$X = -6$ $X = -3$	
3	$X < -27$ 	$X - 3$	$\frac{2x+1}{x-2}$	$X = 5$ $X = 0$	
4	*BONUS	$y = \frac{3}{2}x - 11$ ⊥ line for	example	$y = -\frac{2}{3}x$	
5					
6					
7					
8					

Rounds Total

ALG 2 CHPT 4 ROUNDS

Round 1

A) $\frac{-5}{6} = \frac{(x-5)}{(x+2)}$

$$-5(x+2) = 6(x-5)$$

$$-5x - 10 = 6x - 30$$

$$-5x + 20 = 6x$$

$$\frac{20}{11} = \frac{11x}{11}$$

$$\boxed{x = \frac{20}{11}}$$

B) $(2x-7)(10x+5)(240x) = 0$

$$2x-7=0$$

$$2x=7$$

$$\boxed{x = \frac{7}{2}}$$

$$10x+5=0$$

$$10x=-5$$

$$x = \frac{-5}{10}$$

$$\boxed{x = -\frac{1}{2}}$$

$$240x=0$$

$$\boxed{x=0}$$

C) $27^{3x-2} = 9^x$

$$3^{3(3x-2)} = 3^{2x}$$

$$9x - 6 = 2x$$

$$9x = 6 + 2x$$

$$7x = 6$$

$$\frac{7x}{7} = \frac{6}{7}$$

$$\boxed{x = \frac{6}{7}}$$

D) $2(x-4)^2 + 3 = 11$

$$2(x-4)^2 = 8$$

$$(x-4)^2 = 4$$

$$x-4 = \pm 2$$

$$x-4=2$$

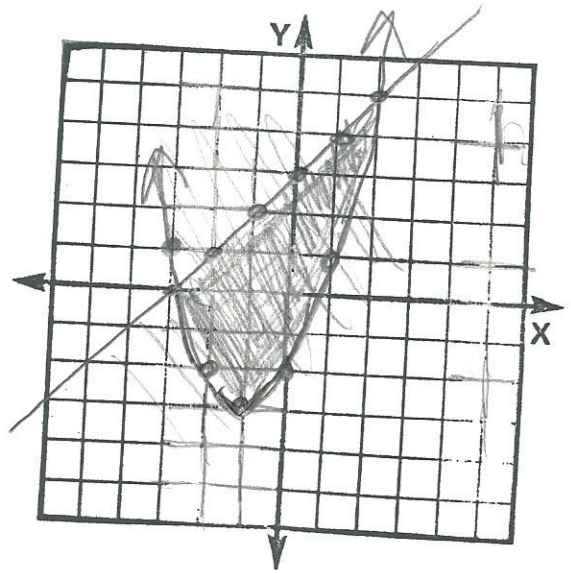
$$\boxed{x=6}$$

$$x-4=-2$$

$$\boxed{x=2}$$

Round 2

A) $y \geq (x+1)^2 - 3$
 $y \leq x+3$



B) $81, 27, 9, 3, 1, \frac{1}{3}, \dots$

$$t(n) = 81\left(\frac{1}{3}\right)^{n-1} \text{ or}$$

$$t(n) = 243\left(\frac{1}{3}\right)^n$$

It would approach zero

C) $T = C+1$
 $3T + 2C = 10.5$
A

$$\begin{aligned} 3(C+1) + 2C &= 10.5 \\ 3C + 3 + 2C &= 10.5 \\ 5C + 3 &= 10.5 \\ 5C &= 7.5 \\ C &= 1.5 \end{aligned}$$

Chips = \$1.5
Tacos = \$2.5

D) $(x+5)^2 - 6 = x+1$
 $x^2 + 10x + 25 - 6 = x+1$
 $x^2 + 10x + 19 = x+1$
 $x^2 + 9x + 18 = 0$
 $(x+6)(x+3) = 0$

$$\begin{aligned} x &= -6 \\ x &= -3 \end{aligned}$$

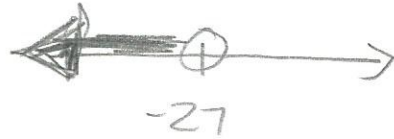
Round 3

$$A) 5(x+7) < 4x+8$$

$$5x+35 < 4x+8$$

$$x+35 < 8$$

$$x < -27$$



$$B) \frac{x^2+x-12}{x-2} \div \frac{x^2+6x+8}{x^2-4} = \frac{(x+4)(x-3)}{(x-2)} \cdot \frac{(x-2)(x+2)}{(x+4)(x+2)}$$
$$\boxed{x-3}$$

$$C) \frac{x^2+2x-15}{x^2-6x+9} \cdot \frac{2x^2-5x-3}{x^2+3x-10}$$
$$\frac{(x+5)(x-3)}{(x-3)(x-3)} \cdot \frac{(2x+1)(x-3)}{(x+5)(x-2)} = \boxed{\frac{2x+1}{x-2}}$$

$$D) 4|2x-5| = 20$$
$$|2x-5| = 5$$

$$2x-5 = 5$$

$$2x = 10$$

$$\boxed{x=5}$$

$$2x-5 = -5$$

$$2x = 0$$

$$\boxed{x=0}$$

Bonus

$$\begin{array}{l} (6, -2) \\ (10, 4) \end{array}$$

$$m = \frac{4 - (-2)}{10 - 6} = \frac{6}{4} = \frac{3}{2}$$

$$y = \frac{3}{2}x + b$$

$$4 = \frac{3}{2}(10) + b$$

$$\begin{array}{r} 4 = 15 + b \\ -15 \quad -15 \end{array}$$

$$-11 = b$$

$$y = \frac{3}{2}x - 11$$

Line \perp
for example

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