

Name _____

Date _____

Advanced Algebra

I can solve various equations

Unit 2: Families of Functions Assignment #2

1) $3x^2 - 8 = 22$

$$x = \pm \sqrt{10}$$

2) $8x^2 - 6x + 4 = 2x^2 + 35$

$$6x^2 - 6x - 31 = 0$$

3) $8x^3 - 12 = 38$

$$8x^3 = 50$$

$$x^3 = \frac{50}{8}$$

$$x = \sqrt[3]{\frac{50}{8}} = 1.84$$

4) $|2x - 5| = 22$

$$2x - 5 = 22$$

$$x = \frac{27}{2}$$

$$x = 13.5$$

$$2x - 5 = -22$$

$$x = \frac{-17}{2}$$

$$x = -8.5$$

5) $4\sqrt{3x - 6} = 16$

$$\sqrt{3x - 6} = 4$$

$$3x - 6 = 16$$

$$3x = 22$$

$$x = \frac{22}{3}$$

6) $12x^{\frac{1}{3}} = 144$

$$x^{\frac{1}{3}} = 12$$

$$x = 12^3$$

$$x = 1728$$

7) $12\sqrt[4]{x - 18} = 18$

$$(x - 18)^{\frac{1}{4}} = \frac{18}{12}$$

$$x - 18 = \left(\frac{18}{12}\right)^4$$

$$x - 18 = 5.0625$$

$$x = 23.0625$$

8) $3x^9 + 12 = 38$

$$x^9 = 8.67$$

$$x = (8.67)^{\frac{1}{9}}$$

$$x = 1.27$$

9) $12x^4 - 16 = 28$

$$x^4 = 3.67$$

$$x = (3.67)^{\frac{1}{4}} = 1.38$$

10) $3(x - 4)^3 - 18 = 292$

$$(x - 4)^3 = 103.33$$

$$x - 4 = 4.69$$

$$x = 8.69$$

* When we set $y=0$ we are finding x intercepts
 very important concept

An important use of your equation skills is to be able to easily find the x intercept. We know that this occurs when $y=0$. Solve the following equations and thus state the x intercept.

Sketch a graph of the function. Your graph should include the general shape and the proper x intercepts

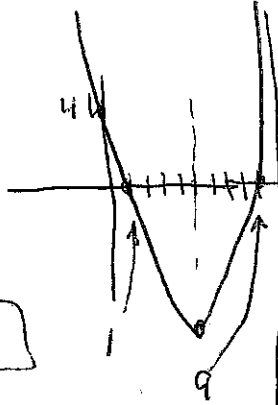
11) $(x-5)^2 - 16 = 0$

$(x-5)^2 = 16$

$x-5 = \pm 4$

$x = 5 \pm 4$

$x = 9, 1$

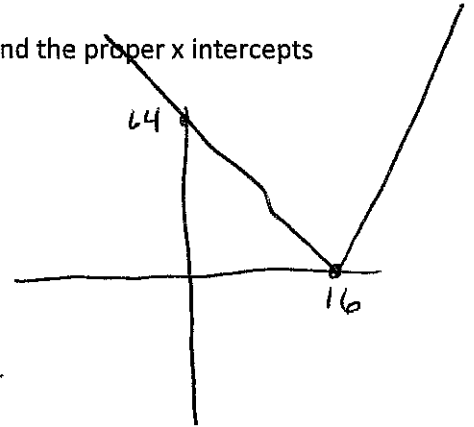


12) $4|x-16|=0$

$|x-16|=0$

$x-16=0$

$x=16$
 x intercept

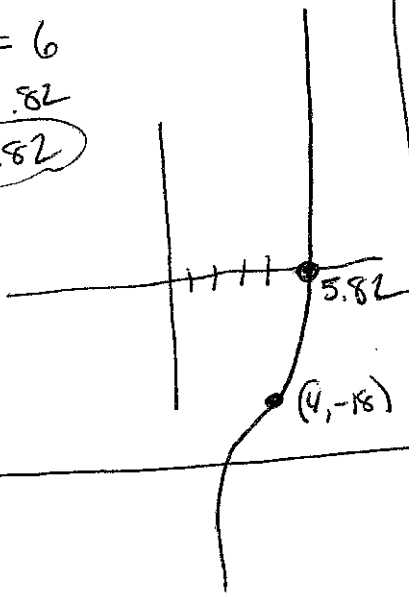


13) $3(x-4)^3 - 18 = 0$

$(x-4)^3 = 6$

$x-4 = 1.82$

$x = 5.82$

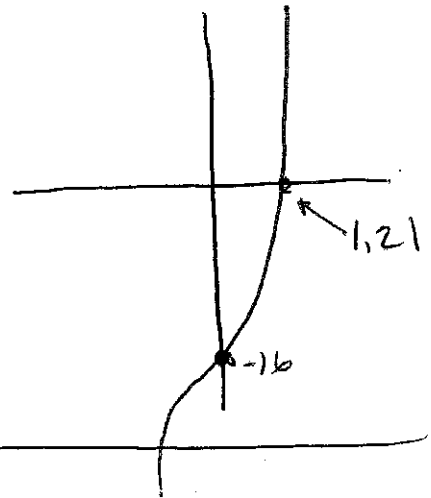


14) $9x^3 - 16 = 0$

$x^3 = \frac{16}{9}$

$x = 1.21$

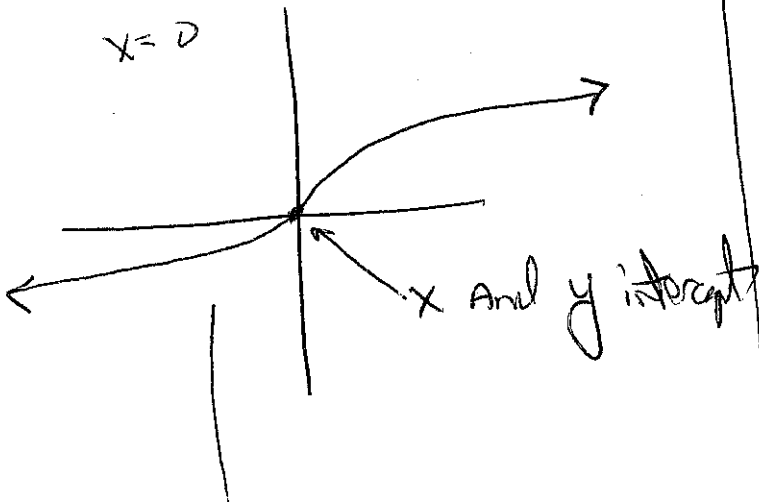
$9(x^3 - \frac{16}{9})$



15) $12x^{\frac{1}{3}} = 0$

$x^{\frac{1}{3}} = 0$

$x = 0$



16) $x^2 - 16 = 0$

$x^2 = 16$

$x = \pm 4$

