

# Pre Calculus Pre-test Solutions

Note Title

4/27/2007

$$1. -7 \leq \frac{3-2x}{5} \leq 9$$

$$-35 \leq 3-2x \leq 40$$

$$-38 \leq -2x \leq 38$$

$$2. |x-1| \geq 4$$

$$x-1 \geq 4 \quad x-1 \leq -4$$

$$x \geq 5 \quad ; \leq -3$$

$$3. |1x - 7x + 2| > 7x - (8 - 9x)$$

$$4x + 2 > 7x - 8 + 9x$$

$$4x + 2 > 16x - 8$$

$$2 > 12x - 8$$

$$10 > 12x$$

4.  $(8, -6)$  and  $(7, -6)$

$$\sqrt{(7-8)^2 + (-6-(-6))^2}$$

$$\sqrt{(-1)^2 + 0^2}$$

$$\sqrt{1+0}$$

$$\sqrt{1}$$

5.  $(4, 2) = \left(\frac{x+13}{2}, \frac{y+9}{2}\right)$

$$4 = \frac{x+13}{2} \quad 2 = \frac{y+9}{2}$$

$$8 = x+13 \quad 4 = y+9$$

$$-5 = x \quad -5 = y$$

6.  $C = (-4, -4)$   $D = (2, 0)$

$$\left(\frac{-4+2}{2}, \frac{-4+0}{2}\right)$$

$$\left(\frac{-2}{2}, \frac{-4}{2}\right)$$

$$\sqrt{(2-(-4))^2 + (0-(-4))^2}$$

$$\sqrt{3^2 + 2^2}$$

$$\sqrt{9+4}$$

$$\sqrt{13}$$

$$\sqrt{(-1-(-4))^2 + (-2-(-4))^2}$$

$$\sqrt{3^2 + 2^2}$$

$$\sqrt{9+4}$$

$$\sqrt{13}$$

$$7. y = 0x + b$$

$$(4) = 0(-2) + b$$

$$4 = 0 + b$$

$$4 = b$$



$$8. 3x^2 = -3x^2 + 54$$

$$6x^2 = 54$$

$$x^2 = 9$$

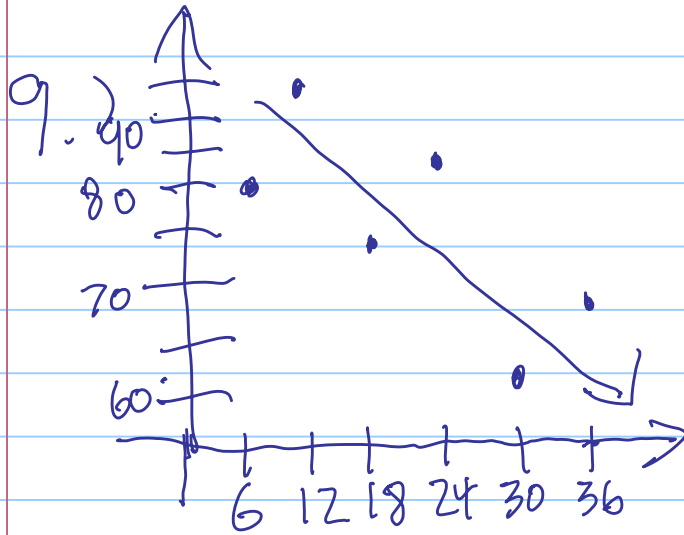
$$x = \pm 3$$

$$y = 3(3)^2$$

$$y = 3(9)$$

$$y = 27$$





Downward trend grade to hours

$$1) \quad RS = \frac{\sqrt{(1+3)^2 + (-4+6)^2}}{\sqrt{4^2 + 2^2}}$$

$\sqrt{20}$

$$QR = \frac{\sqrt{(1-7)^2 + (-4-4)^2}}{\sqrt{8^2 + 0^2}}$$

$\sqrt{64}$

$$QS = \frac{\sqrt{(-3+7)^2 + (-6+4)^2}}{\sqrt{4^2 + (-2)^2}}$$

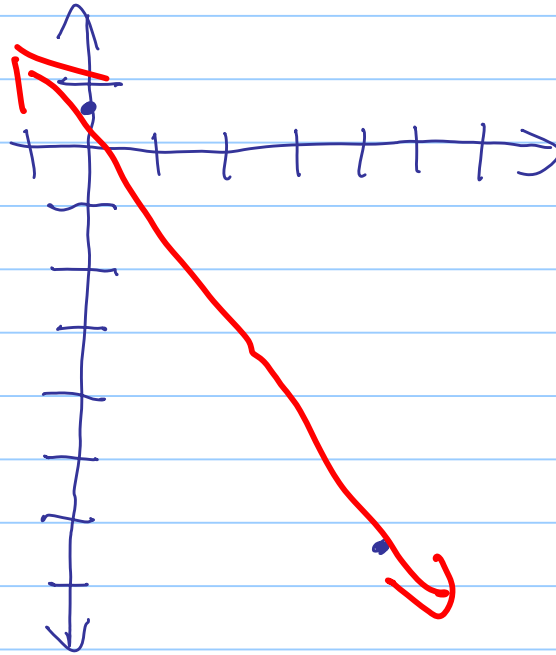
$$11) \frac{1880}{1500} < \frac{1500}{1500} (1+r)^2$$

$$\sqrt{\frac{94}{75}} - 1 < r$$

$$12) y - (-2) = 0(x - (-5))$$

$$y + 2 = 0$$

13)  $y = -\frac{7}{5}x + \frac{3}{5}$



$$14) (x-5)^2 + (y+7)^2 = 100$$

radius =  $\sqrt{100}$

$$15) \left(\frac{5}{4}, \frac{7}{6}\right), \left(\frac{-2}{3}, \frac{1}{9}\right)$$

$$\text{slope} = \frac{7/6 - 1/9}{5/4 - 2/3} = \frac{63-6}{54} = \frac{57/54}{23/12} = \frac{57 \cdot 12}{54 \cdot 23} = \frac{38}{69}$$

$$16) \text{slope } L_1 = \frac{0-6}{1+1} = \frac{-6}{2} = -3$$

$$\text{slope } L_2 = \frac{-1+3}{1+5} = \frac{2}{6} = \frac{1}{3}$$

perpendicular

$$17) -9(x-6)+3x = -4x-3$$

$$-9x+54+3x = -4x-3$$

$$-6x+54 = -4x-3$$

$$-2x+54 = -3$$

$$-2x = -57$$

$$x =$$

$$18) -4y = -5x+4$$

$$y = 5/4x - 1$$

$$\hookrightarrow \text{slope} = -1/5/4 = -4/5$$

$$y - (-9) = -4/5(x - (-6))$$

$$y+9 = -4/5x - 24/5$$



$$19) 4x - 2x + 8 > 2x - (5 - 5x)$$

$$2x + 8 > 2x - 5 + 5x$$

$$2x + 8 > 7x - 5$$

$$2x + 13 > 7x$$

$$13 > 5x$$

$$20) y = -\frac{4}{3}x + 6$$

$$0 = -\frac{4}{3}x + 6$$

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

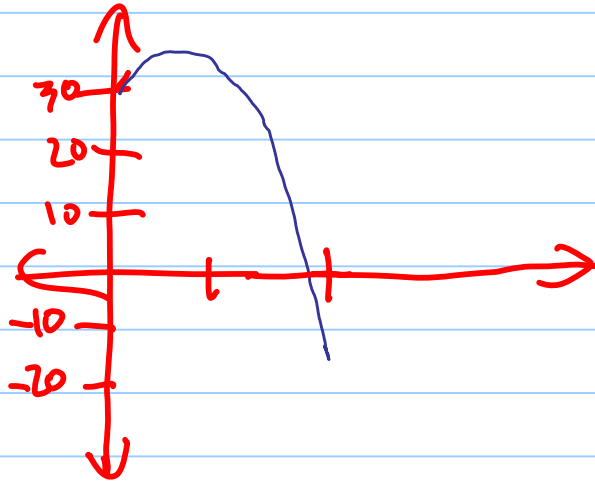
$$9/2 = x$$

$$21) \quad |5/6 K - 21| = 12$$

$$1/6 K = 33$$

$$K = 18$$

22) a)



$$b) \quad 28 = -16.1t^2 + 10t + 30.8$$

$$0 = -16.1t^2 + 10t + 2.8$$

$$\frac{-10 \pm \sqrt{100 - 4(-16.1)(2.8)}}{2(-16.1)}$$

$$\frac{-10 \pm \sqrt{100 + 180.32}}{-32.2}$$

$$-32.2$$

$$\frac{-10 - 16.74}{-32.2}$$

$$\frac{-10 \pm \sqrt{280.32}}{-32.2}$$

$$-32.2$$

$$\frac{-26.74}{-32.2}$$

$$\frac{-10 + 16.74}{-32.2}$$

$$-32.2$$

$$-32.2$$

$$23.) \quad x^4 - 15x^2 + 56 = 0$$
$$(x^2 - 7)(x^2 - 8)$$

$$x^2 = 7 \quad x^2 = 8$$

$$24.) \quad 125x^3 - 8 = 0$$

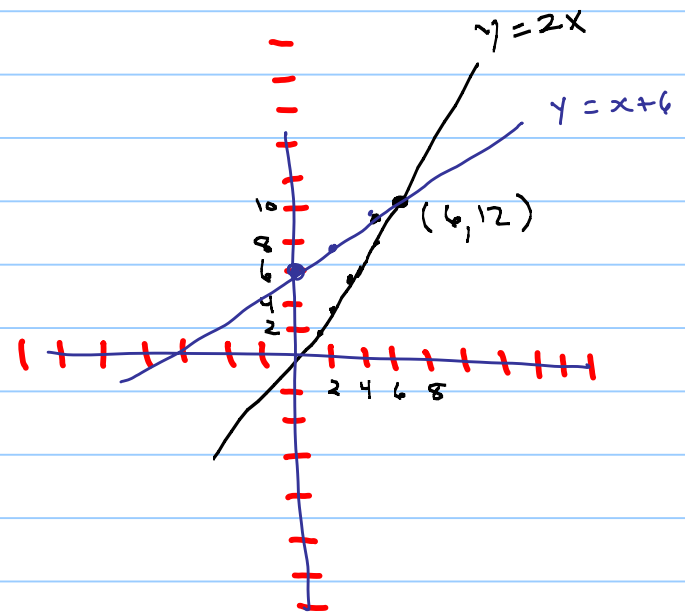
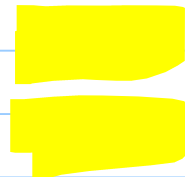
$$5^3 x^3 - 2^3$$

$$x^3 = \frac{2^3}{5^3} = \left(\frac{2}{5}\right)^3$$

$$25) \quad (y) = x + 6$$

$$y = 2x$$

$$2x = x + 6$$



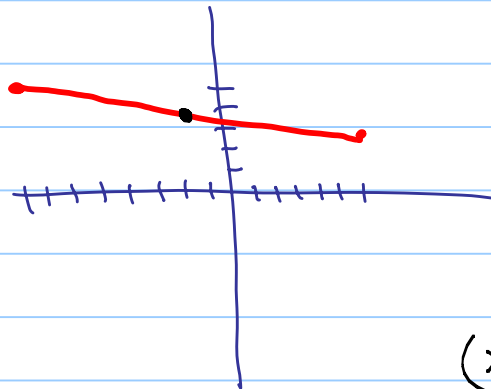
26)

$(6, 3)$     $(-8, 5)$

$$\text{midpoint} = \left( \frac{6 + (-8)}{2}, \frac{3 + 5}{2} \right)$$

$$\left( \frac{-2}{2}, \frac{8}{2} \right)$$

$$(h, k) = (-1, 4)$$



$$\begin{aligned} \text{radius} &= \sqrt{(-8 - (-1))^2 + (5 - 4)^2} \\ &= \sqrt{(-7)^2 + 1^2} \\ &= \sqrt{50} \end{aligned}$$

$$(x - h)^2 + (y - k)^2 = r^2$$



$$27) \quad \frac{4}{x^2-4} - \frac{1}{x-2} = 1$$

$$\frac{4}{(x+2)(x-2)} - \frac{x+2}{(x+2)(x-1)} = 1$$

$$\frac{(x \cancel{-2})}{(x \cancel{+2})(x-2)} = 1$$

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

$$1 = x-2$$

28)

$$\sqrt{x+3} + \sqrt{x} = 5$$

$$(\sqrt{x+3})^2 = (5 - \sqrt{x})^2$$

$$x+3 = 25 - 10\sqrt{x} + x$$

$$-22 = -10\sqrt{x}$$

$$\frac{11}{5} = \sqrt{x}$$

$$29.) \quad y = -2(x-1)^2 - 2$$

$$x \text{ intercepts } \quad y = 0$$

$$y \text{ intercepts } \quad x = 0$$

$$0 = -2(x-1)^2 - 2$$

$$= -2(x^2 - 2x + 1) - 2$$

$$= -2x^2 + 4x - 4$$

$$\text{(or)} \quad 2x^2 - 4x + 4$$

$$\frac{4 \pm \sqrt{16 - 32}}{-4}$$

$$y = a(x-h)^2 + k$$

$$(h, k) = (1, -2)$$

$$y = -2(0-1)^2 - 2$$

$$-2(1) - 2$$

