

Assignment D

This review assignment is due the first day of class. If this assignment seems difficult, then consider

refresher courses Algebra Prep for Math 12 and Trig Prep for Math 12 at

[http://sites.google.com/site/mathprepcourse/home/ALEKS\\_prep\\_courses](http://sites.google.com/site/mathprepcourse/home/ALEKS_prep_courses)

No calculators. Show all of your work in the space provided.

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

$$x + 8$$

$$(x+2)(x^2+4)$$

2. Combine:  $\frac{1}{(x-1)^2} - \frac{1}{2(x-1)} = \frac{2}{2(x-1)^2} - \frac{(x-1)}{2(x-1)^2} =$

$$3x - x + 7 > 4x - 8$$

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

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

$$15 > 2x$$

$$x < 7.5$$

(OR)

$$3x - x + 7 > 4x - 8$$

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

$$-2x > -15 \quad || \oplus \quad -2$$

$$x < \frac{15}{2}$$

6. Solve  $\sqrt{4x^2 - 16x} = 3$  and check your solutions.

~~1.5~~  $4x^2 - 16x = 9$

~~1.5~~  $4x^2 - 16x - 9 = 0$

$\sqrt{81 - 72} = 3$  (T)

7. Given  $f(x) = -2(x-3)^2 + 4$  find the vertex and the exact x-intercepts and graph the function.

$x_v = 3$   $y_v = 4$  as  $f(x) = a(x-h)^2 + k$

$f(x) = -2(x-3)^2 + 4$

$-2(x-3)^2 + 4 = 0$

$x = 2 + \sqrt{2}$

v

$$-20 \quad 2\pi R \quad \parallel \quad 2\pi R$$

$$h = \frac{2 - 2\pi R}{2\pi R} = \frac{2}{2\pi R} - R$$

$$\frac{5 - 2\pi R^2}{2\pi R}$$

5. Solve the following system of equations algebraically. Then graph the two equations and show the solution for the system on your graph.

$$-6x - 4y = 6$$

$$-11x = 22 \quad x = -2$$

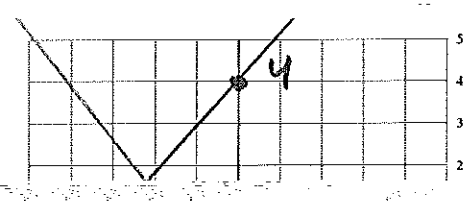
$$\begin{aligned} 5EQ1 + 3EQ2 &\rightarrow 15x + 10y = -15 \\ -15x + 12y &= 48 \\ \hline 22y &= 33 \end{aligned}$$

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

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

Graph

$$\begin{array}{l|l} 3x + 2y = -3 & -5x + 4y = 16 \\ x=0 \quad y = -1.5 & x=0 \quad y = 4 \end{array}$$



8. Simplify.

$$27a^{\frac{1}{3}}$$

$$3^3 a^{-\frac{1}{3}}$$

$$3^{-1} a^{-\frac{1}{3}}$$

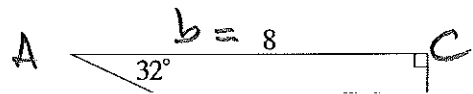
$$= \frac{3^3 a^{-\frac{1}{3}}}{3^3 a^{-\frac{1}{3}}} = 3^3 a^{-\frac{1}{3}} = 27 a^{-\frac{1}{3}}$$

$$= 27 a^{-\frac{1}{3}}$$

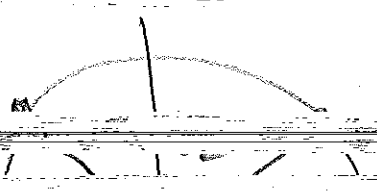
$$= \frac{27}{a^{\frac{1}{3}}}$$

9. Solve the right triangle shown below: that is, find all missing sides and angles. (You will need a calculator for this question.)

$$\tan 32^\circ = \frac{a}{8}$$



$$a = 8 \tan 32^\circ$$



$$\frac{10}{2} \approx 5$$
  
$$= \frac{1}{\sqrt{3}} = 60^\circ$$