Alg2 Unit 1 HW #15 Name: Key Period: Answers only

1. Given the following equations, answer the questions that follow:

a. $y = 2(x-7)^2 - 8$

What form is this in? Vertex

What is the vertex (no calc)? $(7,-8)$

What is the y-intercept? $(0,90)$

What are the x-intercepts, if any? $(5,0)$ $(9,0)$

b. $y = -2(x+5)(x-3)$

What form is this in? Factored

What is the vertex? $(-1,32)$

What is the y-intercept? $(0,30)$

What are the x-intercepts, if any (no calc)? $(-5,0)(3,0)$

2. Solve.

a. $\sqrt{x-24} = \sqrt{x} - 4$

$x = 25$

b. $16x^2 - 81 = 0$

$x = -\frac{9}{4}$ $x = \frac{9}{4}$

3. Solve.

a. $5^{x+4} = 49$

$x = -1.58$

b. $log_4(x+2) + log_4 5 = log_4 70$

$x = 12$

c. $log_2(x-6) - log_2 5 = log_2 3$

$x = 21$

4. Simplify the following:

a. $\sqrt{108}$ $6\sqrt{3}$

b. $\sqrt{-150}$ $5i\sqrt{6}$

c. $\sqrt{(-6)^2 - 4(-2)(-17)}$ $10i$

5. Use the given factors to divide. Find the remaining roots.

$$f(x) = x^4 - 6x^3 - 96x - 256; (x - 8) \text{ and } (x + 2)$$

$x = 8$
$x = -2$
$x = \pm 4i$

6. Perform the indicated operation. Write an equivalent expression in reduced form. Don't forget to list restrictions.

a. $\dfrac{\dfrac{x^2+7x-60}{3x^2-15x}}{\dfrac{x^2+5x-84}{x^3-7x^2}}$

$x \neq 0, 5, 7, -12$

$\dfrac{x}{3}$

b. $\dfrac{8}{2x-10} - \dfrac{10}{3x-15}$

$x \neq 5$

$\dfrac{2}{3(x-5)}$

7. Given the picture, list the following:

a. Degree 5

b. End behaviors L: $+\infty$ R: $-\infty$

c. #Relative Max 2

d. #Relative Min 2

e. L.C. + or – –

f. Give an example equation that could represent the graph

ex. $f(x) = -4x^5 + 2x - 1$