

1. Use the given equation to find all the solutions to the polynomial.

$$f(x) = 2x^4 + 6x^3 + 12x^2 + 96x - 320$$

$$x = 2, x = -5, x = \pm 4i$$

2. Solve.  $\frac{1}{x-2} - \frac{5}{x^2-7x+10} = \frac{6}{x-2}$

$$x = 4$$

$$R: x \neq 5, 2$$

3. Write an equation in standard form of least degree given the following roots:  $x = -3$  and  $x = 2i$ , that passes through  $(7, -265)$ .

$$y = -\frac{1}{2}(x^3 + 3x^2 + 4x + 12)$$

4. Find the value of each, if  $f(x) = 5x^2 + 7x - 4$ ,  $g(x) = x^3 - x + 6$ ,  $h(x) = 3x$

a.  $f(2)$

$$30$$

b.  $f(-3)$

$$20$$

c.  $f(g(-1))$

$$218$$

d.  $g(h(x))$

$$27x^3 - 3x + 6$$

5. Given the following equation, answer the following questions:

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

- a. In what form is this equation? vertex      b. What is the vertex? (2, 4)
- c. What is the y-intercept? 0      d. What are the x-intercepts, if any? x=0, x=4

6. Solve the following radical equations.

a.  $7 - 2\sqrt{3x + 4} = -1$

$$x = 4$$

b.  $\sqrt{10x + 66} - x = 9$

$$x = -3, x = -5$$

7. Solve the following logarithmic equations.

a.  $\log_7(x - 2) + \log_7(x + 3) = \log_7 14$

~~x=5~~      ~~x=-5~~  
~~x=4~~      x=4

b.  $\log_2(5x + 7) = 5$

$$x = 5$$

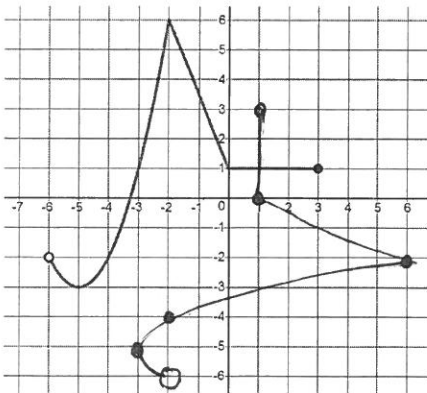
c.  $\ln(2x - 7) = 4$

$$x = 30.799$$

d.  $3e^{8x+1} = 45$

$$x = 0.214$$

8. Draw the inverse



9. Find  $d^{-1}(x)$  if  $d(x) = (x + 1)^2 - 4$

$$d^{-1}(x) = \sqrt{x+4} - 1$$