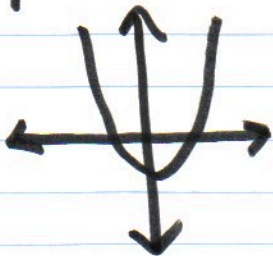


**A**

1.  $y = x^2 - x - 2$

Vertex:  $(1, -2)$



Axis of sym:  $x = 1$

2.  $y = x^2 + 3x + 2$

$a = 1$

$b = 3$

$c = 2$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-3 \pm \sqrt{(3)^2 - 4(1)(2)}}{2(1)}$$

$$= \frac{-3 \pm \sqrt{1}}{2}$$

$$= \frac{-3 + \sqrt{1}}{2} = -1 \quad \frac{-3 - \sqrt{1}}{2} = -2$$

3.  $y = -x^2 - 2x + 3$

$a = -1$

$b = -2$

$c = 3$

$$\frac{b^2 - 4ac}{16}$$
$$\frac{(-2)^2 - 4(-1)(3)}{16}$$

4. Inc  $[-2, -1]$

Dec  $[-1, 1]$

Inc  $[1, 2]$

5. Domain:  $[-2, 2]$

Range:  $[-2, 0]$

**B**

$$1. \frac{3x^2+x}{-7x+3} \\ \underline{3x^2-6x+3}$$

$$2. (-5x^5+3x^2-7x-9) - (5x^5-3x^3-7x+2) \\ (-5x^5+3x^2-7x-9) + (-5x^5+3x^3+7x-2) \\ \underline{-5x^5+3x^2-7x-9} \\ -5x^5 \quad +7x-2+3x^3 \\ \underline{-10x^5+3x^2-11+3x^3} \\ -10x^5+3x^2-11+3x^3 \\ \text{OR} \\ -10x^5+3x^3+3x^2-11$$

$$3. (8x+3)(x-4)$$

	8x	3
x	8x <sup>2</sup>	3x
-4	-32x	-12

$$8x^2+3x-32x-12$$

$$8x^2-29x-12$$

$$4. f(x) = 9x^2 - 36$$

	9x	18
9x	9x <sup>2</sup>	18x
-18	-18x	-36

$$\frac{-324x^2}{18x} \quad \frac{-18x}{18x}$$

$$(9x+18)(9x-18) = 0 \\ \left. \begin{array}{l} 9x+18=0 \\ -18 \quad -18 \\ \hline 9x = -18 \\ \frac{9x}{9} = \frac{-18}{9} \\ \boxed{x = -2} \end{array} \right\} \begin{array}{l} 9x-18=0 \\ +18 \quad +18 \\ \hline 9x = 18 \\ \frac{9x}{9} = \frac{18}{9} \\ \boxed{x = 2} \end{array}$$

$$5. A = P + P \cdot r \cdot t$$

$$\underline{-P \quad -P}$$

$$\frac{A-P}{Pt} = \frac{P \cdot r \cdot t}{Pt}$$

$$r = \frac{A-P}{Pt}$$

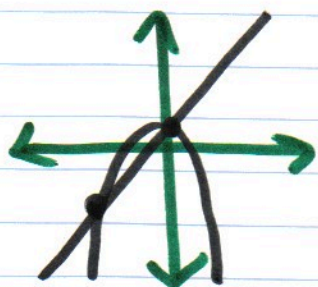
C

1.  $P = 2450$   
 $r = .05$   
 $t = 3$

$$A = P(1+r)^t$$
$$= 2450(1+.05)^3$$
$$= 2836.18 = 2836$$

2.  $\log_3 2187 = 7$

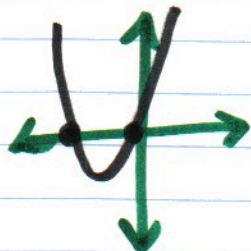
3.



Two solutions:  $(0, 2)$   $(-3, -4)$

4.  $y = 2x^2 + 9x + 7$

Two solutions



5.  $f(5)$   $x = 5$

$$f(x) = \frac{4}{5}x - 4$$

$$= \frac{4}{5}(5) - 4$$

$$f(5) = 0$$

D

$$1. \sqrt{3m+4} = 5$$

$$(\sqrt{3m+4})^2 = (5)^2$$

$$3m+4 = 25$$

$$3m = 21$$

$$m = 7$$

$$2. \sqrt{20} + \sqrt{5}$$

$$\sqrt{4} \cdot \sqrt{5} + \sqrt{5}$$

$$2\sqrt{5} + \sqrt{5}$$

$$3\sqrt{5}$$

$$3. t = \frac{k}{r}$$

$$t = \frac{1000}{r}$$

$$2.5 = \frac{k}{400}$$

$$= \frac{1000}{500}$$

$$k = 1000$$

$$t = 2$$

$$4. p = kh$$
$$\frac{198}{24} = \frac{k(24)}{24}$$

$$8.25 = k$$

$$p = 8.25h$$
$$= 8.25(40)$$

$$p = 330$$

$$5. V = khr^2$$
$$402.12 = k(8)(4)^2$$

$$\frac{402.12}{128} = \frac{k(128)}{128}$$

$$3.14 = k$$

$$V = 3.14hr^2$$

$$= 3.14(10)(2)^2$$

$$V = 125.6$$