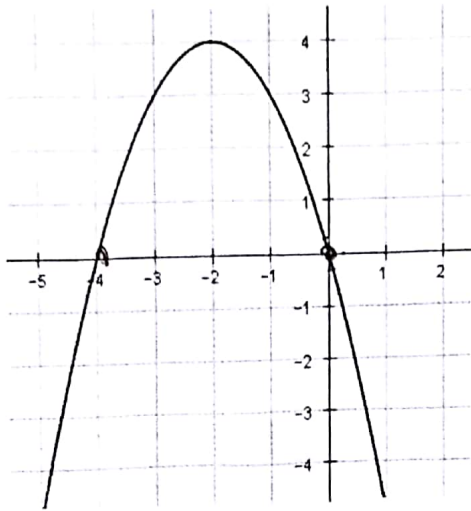


### Final Review #3

1) Using the graph below, determine the following:



A) The axis of symmetry

$$x = -2$$

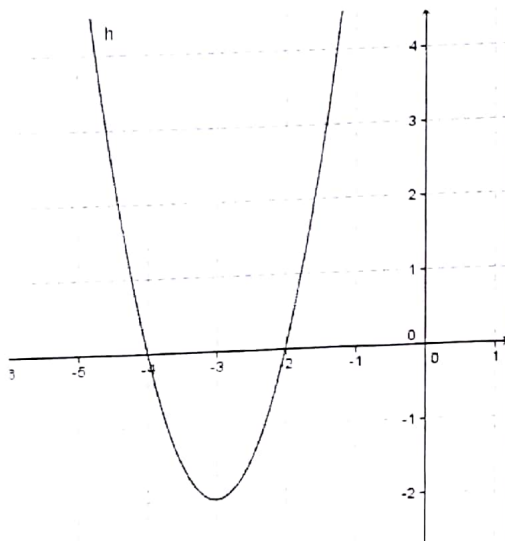
B) State the maximum point

$$(-2, 4)$$

C) The roots of the equation.

$$(-4, 0) \quad (0, 0)$$

2) Using the graph below, determine the following:



A) The axis of symmetry

$$x = -3$$

B) State the maximum point

~~$$(-4, 0) \quad (-2, 0)$$~~ 
$$(-3, -2)$$

C) The roots of the equation

$$(-4, 0) \quad (-2, 0)$$

3) What is the product of  $-2x^4$  and  $4x^5$ ?

$$-8x^9$$

4) What is the product of  $3x^3y^7$  and  $9x^2y$ ?

$$27x^5y^8$$

5) The expression  $\frac{-12x^2y^4}{2x^2y^2}$  is equivalent to:

$$-6y^2$$

6) The expression  $\frac{16x^6y^4}{4xy^4}$  is equivalent to:

$$4x^5$$

Directions: Factor each of the following:

7)  $x^2 - 25$

DOTS

$$(x-5)(x+5)$$

8)  $2x^3 - 72x$

$$2x(x^2 - 36)$$

$$2x(x-6)(x+6)$$

9)  $3x^2 + 12x + 6$

VRAB

$$3(x^2 + 4x + 2)$$

$$3(x^2 + 4x + 2)$$

$$\frac{2}{1 \cdot 2}$$

$$\uparrow$$

none

10)  $x^2 - 16$

$$(x-4)(x+4)$$

11)  $4x^3 - 64x$

$$4x(x^2 - 16)$$

$$4x(x-4)(x+4)$$

12)  $x^2 + 10x + 21$

$$(x^2 + 7x) + (3x + 21)$$

$$x(x+7) + 3(x+7)$$

$$(x+3)(x+7)$$

$$13) 6x^4 - 96x^2$$

$$6x^2(x^2 - 16)$$

$$6x^2(x-4)(x+4)$$

$$14) 2x^2 + 10x + 6$$

$$2(x^2 + 5x + 3)$$

$$\frac{3}{3 \cdot 1}$$

↑  
none

$$15) -4x^2 - 36x - 72$$

$$-4(x^2 + 9x + 18) \quad \frac{18}{6 \cdot 3}$$

$$-4(x^2 + 6x) + (3x + 18)$$

$$x(x+6) \quad 3(x+6)$$

$$-4(x+3)(x+6)$$

$$16) 3x^2 - 5x - 2$$

$$(3x^2 - 6x)(x-2) \quad \frac{-6x^2}{1 \cdot 6}$$

$$3x(x-2) \quad 1(x-2)$$

$$(3x+1)(x-2)$$

$$17) x^6 - 4x^2$$

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

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

$$18) x^2 + 14x + 45$$

$$(x^2 + 9x)(5x + 45) \quad \frac{45}{9 \cdot 5}$$

$$x(x+9) \quad 5(x+9)$$

$$(x+5)(x+9)$$

$$19) 3x^3 - 6x^2 - 30x$$

$$3x(x^2 - 2x - 10)$$

$$\frac{-10x^2}{5 \cdot 2}$$

↑  
none

$$20) (2x^3 - 10x^2)(x+5)$$

$$2x^2(x-5) - 1(x-5)$$

$$(2x^2 - 1)(x-5)$$

$$21) x^2 - 26x - 27 \quad \frac{-27}{1 \cdot 27}$$

$$(x^2 - 27x)(x - 27)$$

$$x(x - 27)(x - 27)$$

$$(x + 1)(x - 27)$$

$$22) 2x^2 + x - 6 \quad \frac{-12}{4 \cdot 3}$$

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

$$2x(x + 2) - 3(x + 2)$$

$$(2x - 3)(x + 2)$$

$$23) (4xy - 24y)(x + 6)$$

$$4y(x - 6) - 1(x - 6)$$

$$(4y - 1)(x - 6)$$

$$24) -5x^3 + 500x$$

$$-5x(x^2 - 100)$$

$$-5x(x - 10)(x + 10)$$

$$25) 100x^4 - 49y^2$$

$$(10x^2 - 7y)(10x^2 + 7y)$$

$$26) 2x^2 + 3x - 5 \quad \frac{-10x^2}{1 \cdot 10}$$

$$(2x^2 + 5x)(x - 1)$$

$$x(2x + 5) - 1(2x + 5)$$

$$(x - 1)(2x + 5)$$

27) Simplify each of the following:

a.  $\frac{77a^{-4}b^{-5}c}{11a^2b^{-1}c}$

$$7a^{-6}b^{-4} = \frac{7}{a^6b^4}$$

c.  $10a^{-3} \cdot 3a^{-8}$

$$30a^{-11} \Rightarrow \frac{30}{a^{11}}$$

b.  $-\frac{32m^8b^2}{4m^5b}$

$$-8m^3b$$

d.  $12x^{11} \cdot 3x$

$$36x^{12}$$