Algebra II & Trigonometry Name _____
Exam Review problems
Chapter 9

1. Subtract: $(5x^3 - 2x^2 - 3x + 7) - (9x^3 + 5x^2 - 4x + 2)$

_____

2. Multiply the following. Put your answers in standard form.

(a) $(5m - 6)(2m + 7)$ (b) $(m - 3)(5m^2 - 4m + 2)$ (c) $(2m - 5)^2$

_____ _____ _____

3. Factor the following completely

(a) $3x^4 - 12x^3 + 12x^2$ (b) $2x^2 - 8$ (c) $x^3 + 4x^2 - 9x - 36$

_____ _____ _____

(a) $3x^3 + 6x^2 - 27x - 54$ (b) $-5x^4 + 5x^3 + 30x^2$ (c) $32x^2 - 50$

_____ _____ _____

4. Divide the following using synthetic division. Identify the quotient and remainder.

(a) $x^3 - 7x^2 - 5x + 75$ by $x + 3$ (b) $3x^3 - 12x + 1$ by $x - 2$

Quotient _____ R _____ Quotient _____ R _____

5. Factor each of the following polynomials completely using the given information.

(a) $x^3 - 5x^2 - 18x + 72$ *given that* $x - 3$ *is one factor.*

(b) $x^4 - 5x^2 + 4$ *given that 1 a root.*

6. Find all zeros (real and complex) of each polynomial below using the given information.

(a) $x^3 - 9x^2 + 26x - 24$ *given that 2 is a zero.*

(b) $x^3 + 4x^2 + 14x + 20$ *given that -2 is a zero*

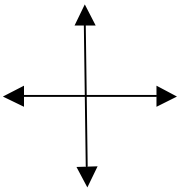
7. List all potential rational roots of each polynomial. *You do not have to find any actual roots.*

(a) $3x^3 - 2x^2 - 5x - 6$

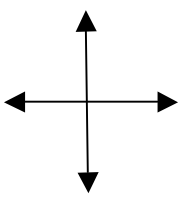
(b) $x^2 - x - 1$

8.Sketch each monomial graph

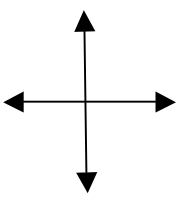
(a) $y = x^3$



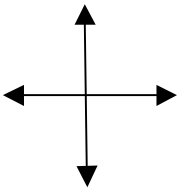
(b) $y = x^4$



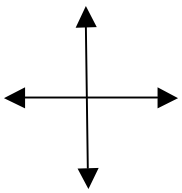
(c) $y = x^5$



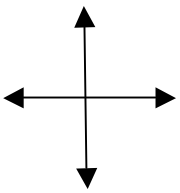
(d) $y = (x-3)^4$



(e) $y = -(x+2)^4 - 3$

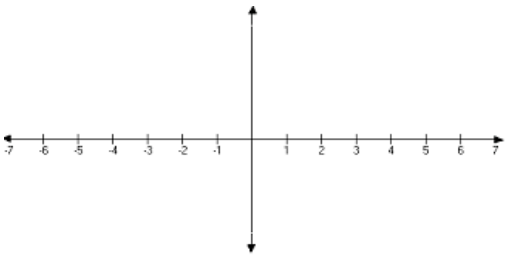


(f) $y = 10 - x^3$

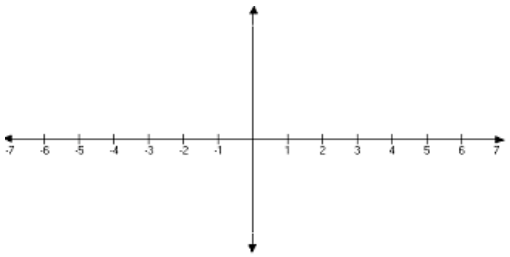


9. Sketch each polynomial graph.

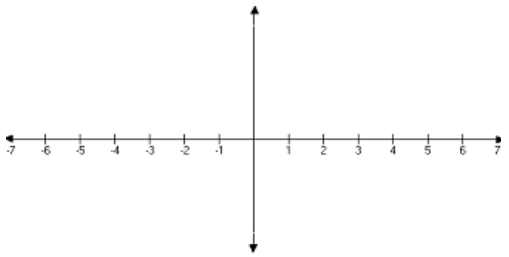
(a) $y=(x+1)(x-1)(x-3)$



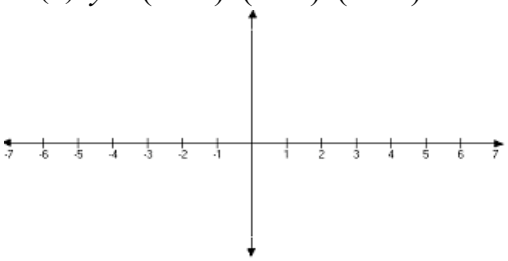
(b) $y=-(x+1)(x-1)(x-3)$



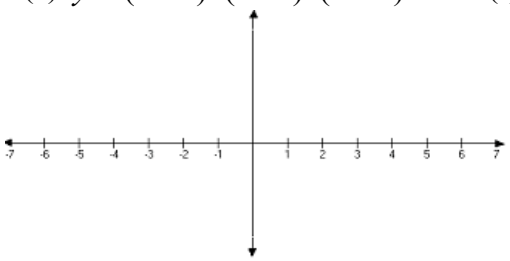
(c) $y=-x(x-2)(x-4)(x-6)$



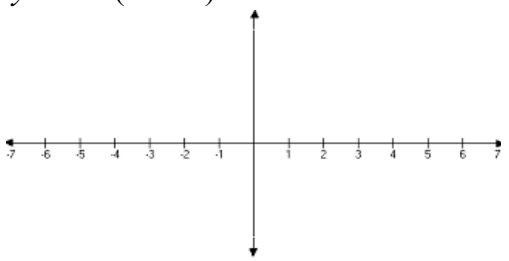
(d) $y=(x+3)^2(x+1)^3(x-2)$



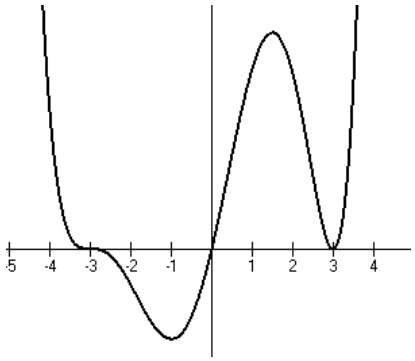
(e) $y=(x+3)^4(x+1)^3(x-2)$



(f) $y=-x^3(2x-7)^2$

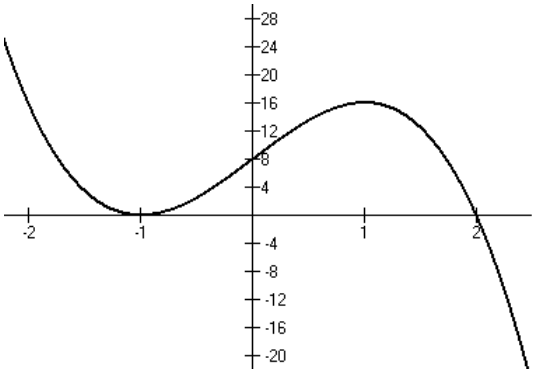


10. Which equation best matches the graph to the right?



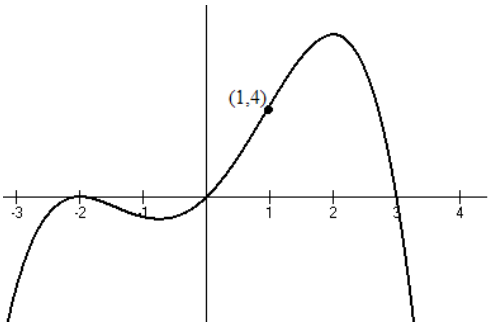
A. $y=(x+3)^2(x-3)^3$
B. $y=x(x+3)^2(x-3)^3$
C. $y=x(x-3)^2(x+3)^3$
D. $y=(x-3)^2(x+3)^3$

11. Which equation is graphed to the right?



(A) $y=(x+1)^2(x-2)$
(B) $y=-(x+1)^2(x-2)$
(C) $y=8(x+1)^2(x-2)$
(D) $y=-8(x+1)^2(x-2)$
(E) $y=-4(x+1)^2(x-2)$

12. Write an equation in factored form for the polynomial to the right. Be sure to calculate the correct leading coefficient.



_____