

SHOW ALL WORK.

Determine the number of roots for the polynomial function.

1. $f(x) = 5x^2 - 7x^4 + 15$

2. $f(x) = -5(x-2)(x^3+1)(x-4)^2$

3. $f(x) = -5(x-3)^2 + 8$

a. state the degree

b. find all roots

c. determine the number of x-intercepts

4. $f(x) = 2(x-1)(x+5)(x+7)$

5. $f(x) = -3x(x+2)(x-6)^2$

6. $f(x) = 6(x-5)(x^2+16)$

7. $f(x) = 9x^2 + 12x + 4$

8. $f(x) = 3x^3 - 14x - 5x$

9. $f(x) = x^5 + x^4 - 12x^3$

10. $f(x) = -2$

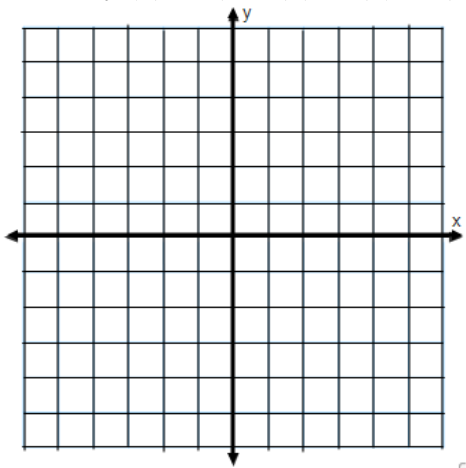
11. $f(x) = 5x(x^2 - 36)$

12. $f(x) = 8x - 1$

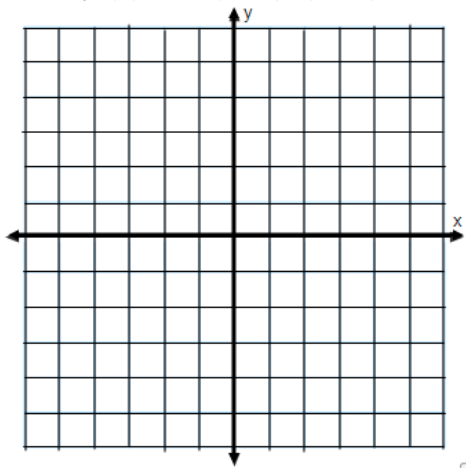
a. Determine the number of real and imaginary roots.

b. Sketch a graph of the function.

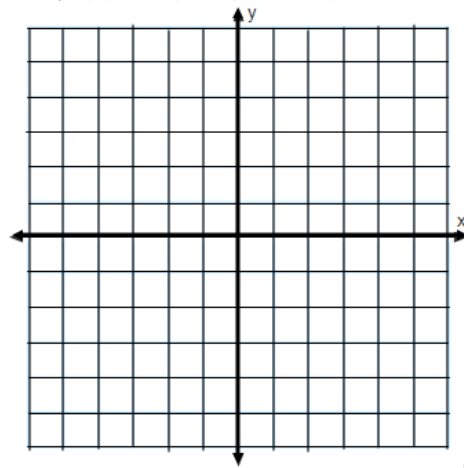
13. $f(x) = 5(x-2)(x+3)(x-4)$



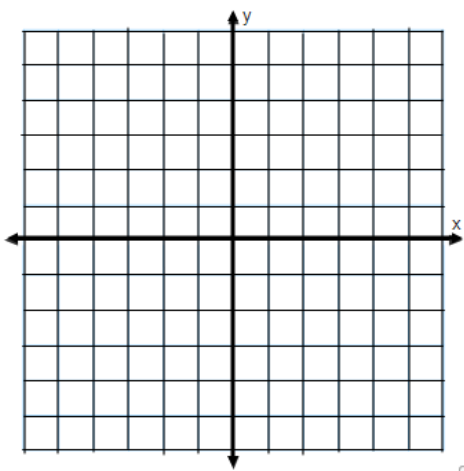
14. $f(x) = -2(x+1)^2(x-3)$



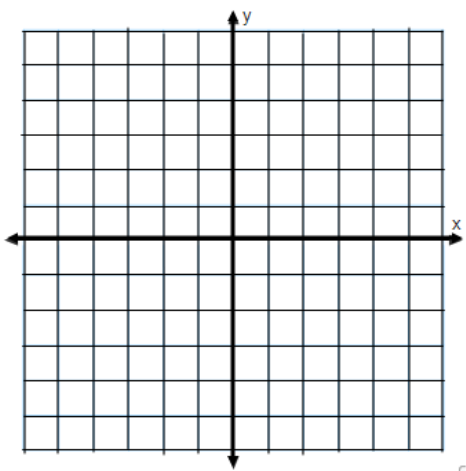
15. $f(x) = 7(x-1)(x^2+9)$



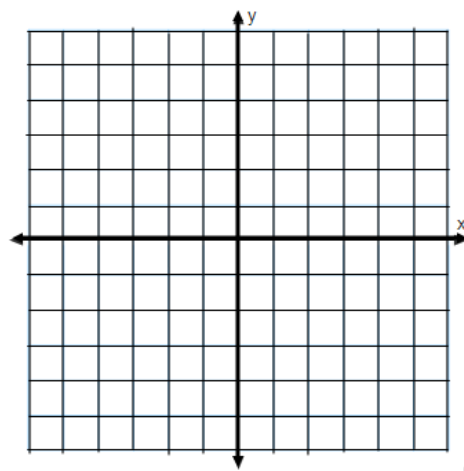
16. $f(x) = -5(x+2)^2(x-3)^2$



17. $f(x) = -3(x+4)(x+1)(x-3)^2$



18. $f(x) = (x+2)^3(x-4)^2$

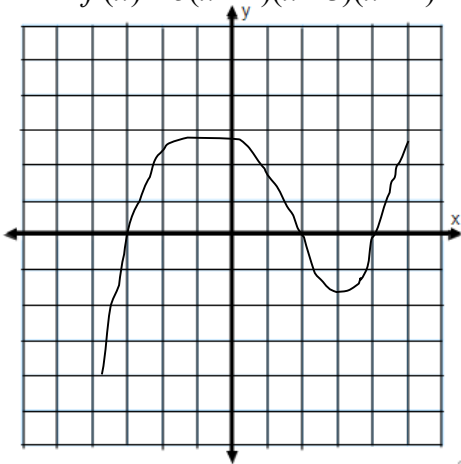


Homework 5.2

1. 4 2. 6 3. 2

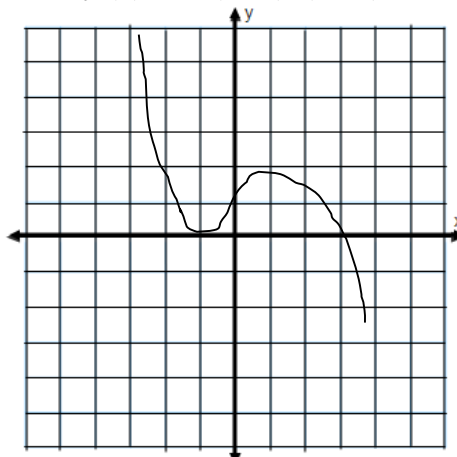
	a. degree	b. roots	c. number of x-intercepts
4.	3	1, -5, -7	3
5.	4	0, -2, 6, 6	4
6.	3	5, 4i, -4i	1
7.	2	-2/3, -2/3	2
8.	3	0, 5, -1/3	3
9.	5	0, 0, 0, 3, -4	5
10.	0	none	none
11.	3	0, 6, -6	3
12.	1	1/8	1/8

13. $f(x) = 5(x-2)(x+3)(x-4)$



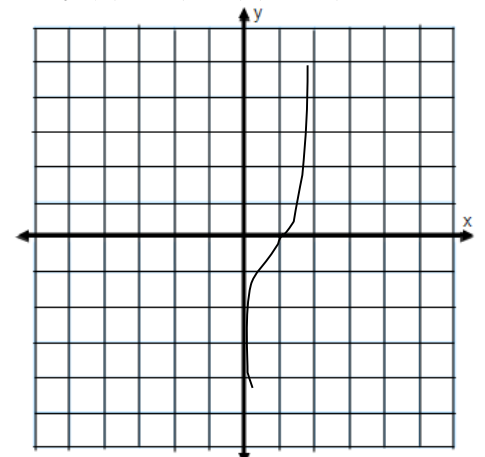
3 real, 0 imaginary

14. $f(x) = -2(x+1)^2(x-3)$



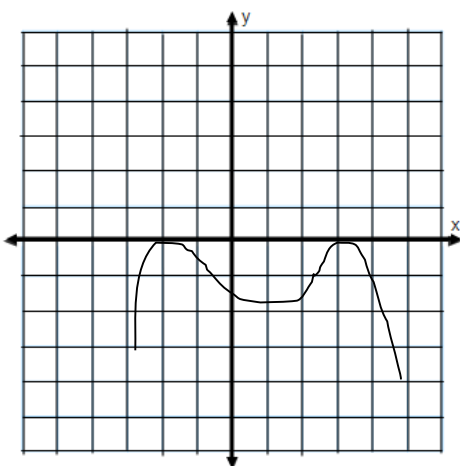
3 real, 0 imaginary

15. $f(x) = 7(x-1)(x^2+9)$



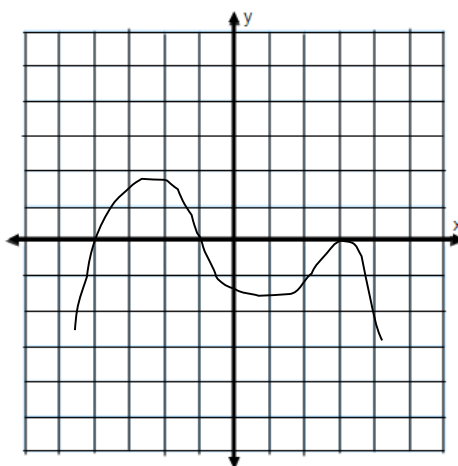
1 real, 2 imaginary

16. $f(x) = -5(x+2)^2(x-3)^2$



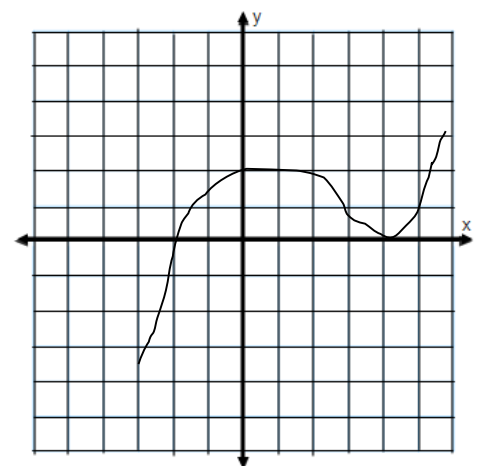
4 real, 0 imaginary

17. $f(x) = -3(x+4)(x+1)(x-3)^2$



4 real, 0 imaginary

18. $f(x) = (x+2)^3(x-4)^2$



5 real, 0 imaginary