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Date _____
Algebra II



Writing Equations of Polynomial Equations

State the zeros for the following polynomials

1. $p(x) = (x+2)(x-4)(x+1)$

$$x = -2, x = 4, x = -1$$

2. $p(x) = (x-6)(x+3)(x-8)$

$$6, -3, 8$$

3. $p(x) = x(x-6)(x+3)$

$$0, 6, -3$$

4. $p(x) = x(x-1)(x+1)$

$$0, 1, -1$$

5. $p(x) = x(x-7)(x+10)(x-3)$

$$0, 7, -10, 3$$

6. $p(x) = (x-2)(x-3)(x+4)$

$$2, 3, -4$$

7. $p(x) = 2(x+1)(x-4)(x+6)$

$$-1, 4, -6$$

8. $p(x) = -3x(x-2)(x-4)(x+7)$

$$0, 2, 4, -7$$

Write a possible polynomial equation in factored form if the zeros are:

9. $\{-4, -2, 3\}$

$$p(x) = (x+4)(x+2)(x-3)$$

10. $\{6, -7, -2\}$

$$p(x) = (x-6)(x+7)(x+2)$$

11. $\{0, 1, -2, 4\}$

$$p(x) = x(x-1)(x+2)(x-4)$$

12. $\{0, -2, -6, 3\}$

$$p(x) = x(x+2)(x+6)(x-3)$$

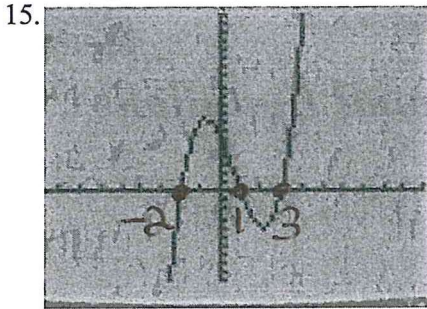
13. $\{-7, 8, 3, \pm 5\}$

$$p(x) = (x+7)(x-8)(x-3)(x+5)(x-5)$$

14. $\{0, \pm 4, 7\}$

$$p(x) = x(x+4)(x-4)(x-7)$$

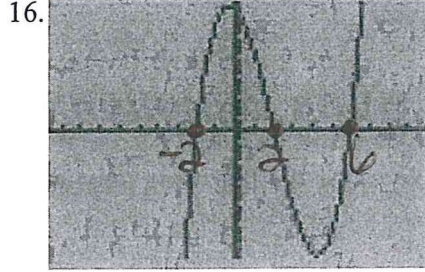
Write a possible equation for each of the following polynomials and state the end behavior



$$x \rightarrow -\infty, f(x) \rightarrow -\infty$$

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

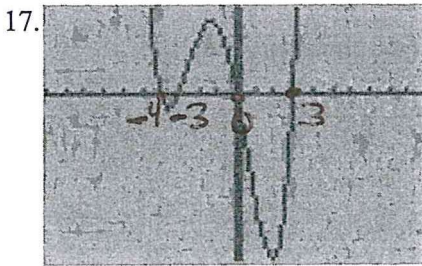
$$P(x) = (x+2)(x-1)(x-3)$$



$$x \rightarrow -\infty, f(x) \rightarrow -\infty$$

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

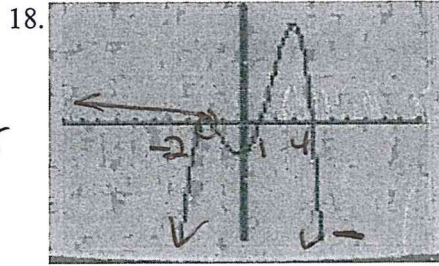
$$P(x) = (x+2)(x-2)(x-6)$$



$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

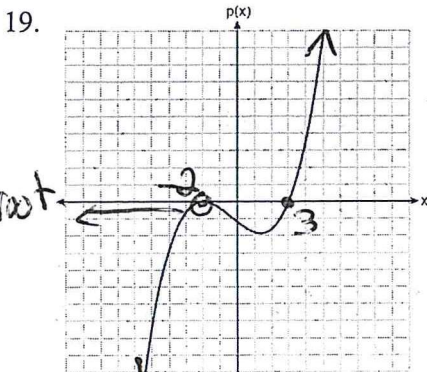
$$P(x) = -(x+4)(x+3)(x-3)$$



$$x \rightarrow -\infty, f(x) \rightarrow -\infty$$

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

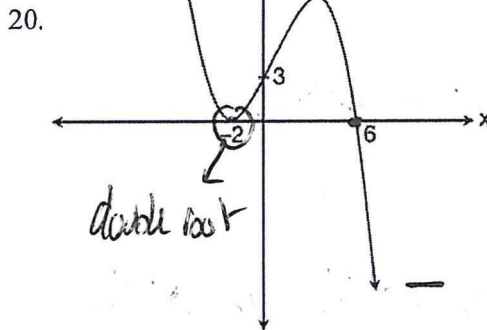
$$P(x) = -(x+2)^2(x-4)$$



$$x \rightarrow -\infty, f(x) \rightarrow -\infty$$

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

$$P(x) = (x+2)^2(x-3)$$

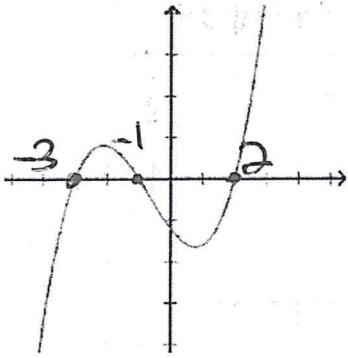


$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

$$P(x) = (x+2)^2(x-6)$$

21.

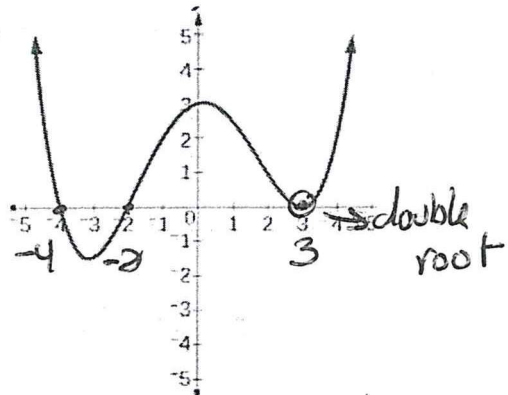


$$x \rightarrow -\infty, f(x) \rightarrow -\infty$$

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

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

22.

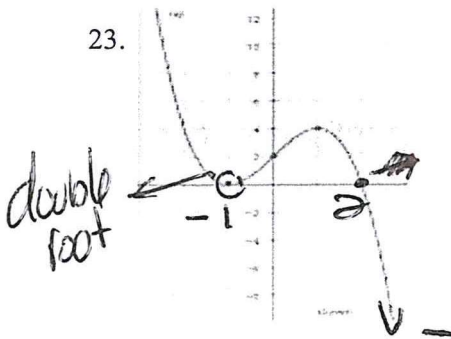


$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

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

23.

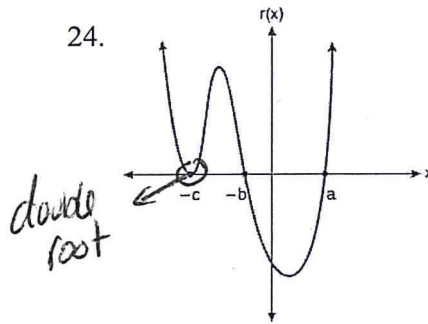


$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

$$p(x) = -(x+1)^2(x-2)$$

24.

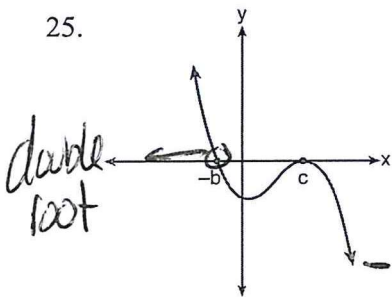


$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

$$x \rightarrow \infty, f(x) \rightarrow \infty$$

$$p(x) = (x+c)^2(x+b)(x-a)$$

25.

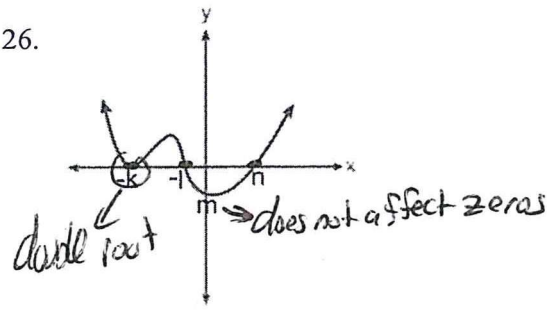


$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

$$p(x) = -(x+b)(x-c)^2$$

26.

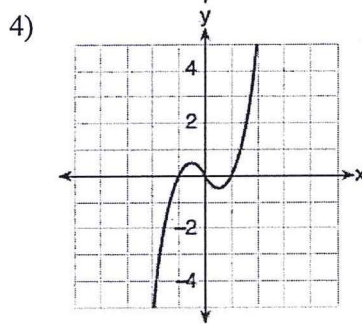
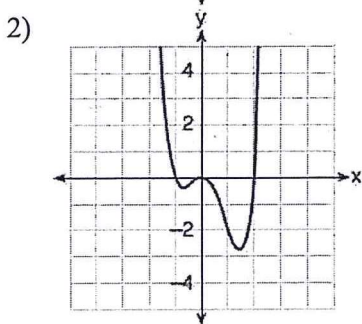
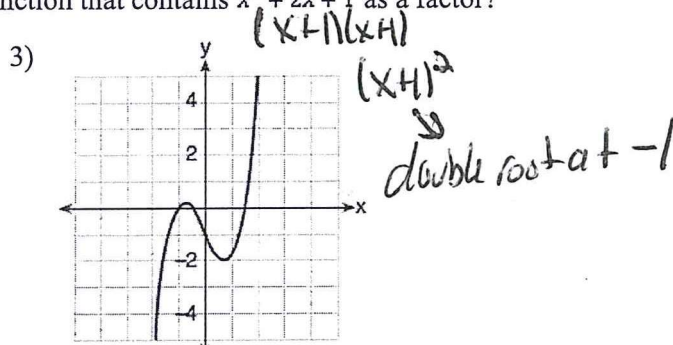
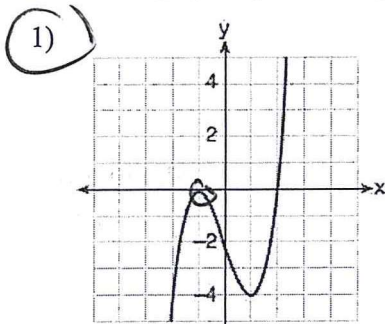


$$x \rightarrow -\infty, f(x) \rightarrow \infty$$

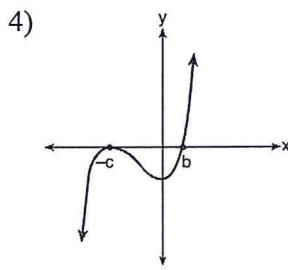
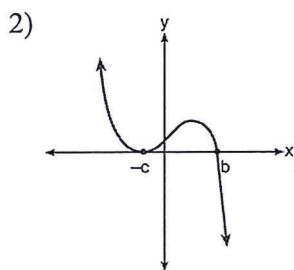
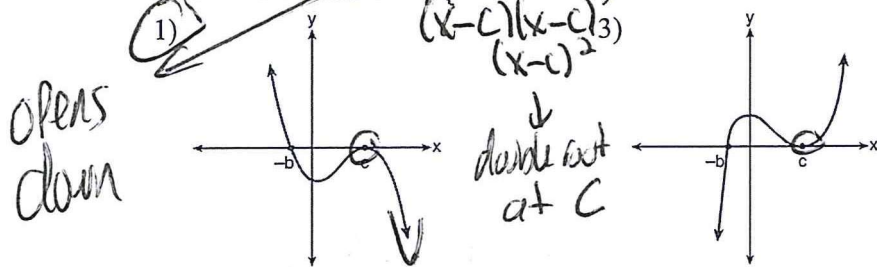
$$x \rightarrow \infty, f(x) \rightarrow \infty$$

$$p(x) = (x+k)(x+l)(x-n)$$

27. Which graph represents a polynomial function that contains $x^2 + 2x + 1$ as a factor?



28. If a , b , and c are all positive real numbers, which graph could represent the sketch of the graph of $p(x) = -a(x+b)(x^2 - 2cx + c^2)$?



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