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Date _____
Algebra II

Factors and Zeros

State the zeros for the following polynomials

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

$x=-2 \quad x=4 \quad x=-1$

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

$x=6 \quad x=-3 \quad x=8$

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

$x=0 \quad x=6 \quad x=-3$

4. $p(x) = -2x(x-7)(x+10)(x-3)$

$x=0 \quad x=7 \quad x=-10 \quad x=3$

5. $p(x) = k(x+a)(x-b)(x+c)$ (not a variable)

$x=-a \quad x=b \quad x=-c$

6. $p(x) = x(x-n)(x+m)(x-k)$

$x=0 \quad x=n \quad x=-m \quad x=k$

7. $p(x) = -2x(x-j)(x-k)(x+n)$

$x=0 \quad x=j \quad x=k \quad x=-n$

8. $p(x) = -a(x+b)(x+c)(x-d)$ (not a variable)

$x=-b \quad x=-c \quad x=d$

Write a possible polynomial equation in factored for 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. $\{0,\pm 4,7\}$

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

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

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

14. $\{0,a,b,-c\}$

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

15. $\{j,-k,l,-n\}$

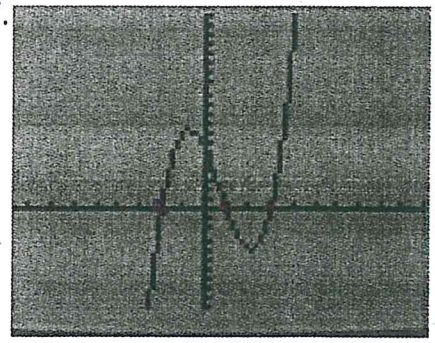
$p(x)=(x-j)(x+k)(x-l)(x+n)$

16. $\{0,\pm a,b,\pm c\}$

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

Write a possible equation for each of the following polynomials

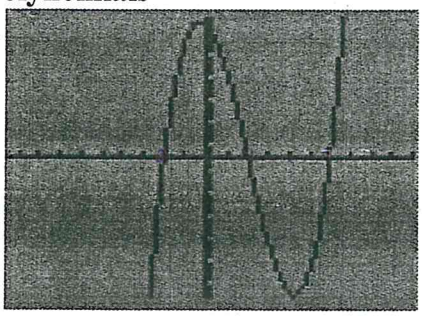
17.



Zeros: $-2, 1, 3$

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

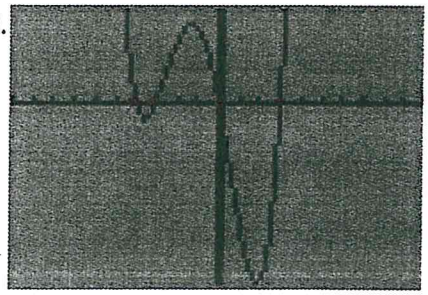
18.



Zeros: $-2, 2, 6$

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

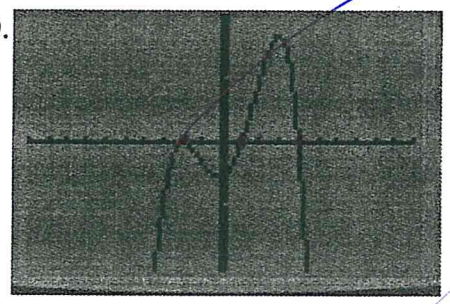
19.



Zeros: $-4, -3, 0, 3$

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

20.



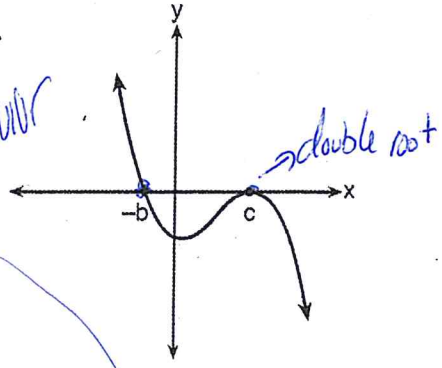
double root

end behavior —

Zeros: ~~-2~~, $-2, 1, 4$

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

21.



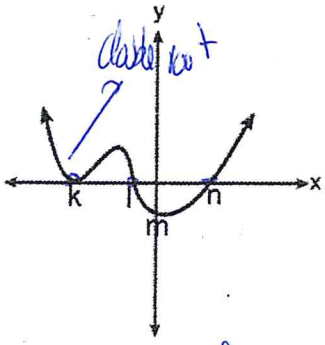
end behavior —

double root

Zeros: $-b, c, c$

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

22.



double root

Zeros: k, k, l, n

$p(x) = (x-k)^2(x-l)(x-n)$