

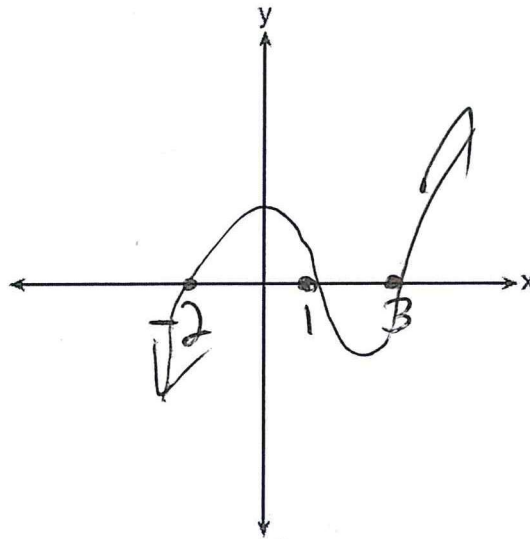
The zeros hit the x-axis
The factors don't

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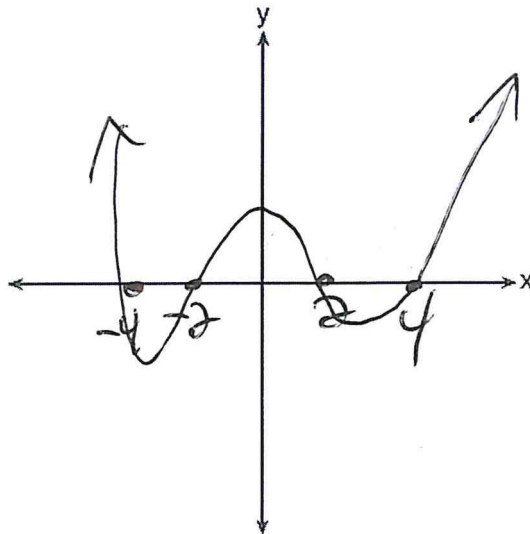
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Algebra II

Sketching Polynomial Equations

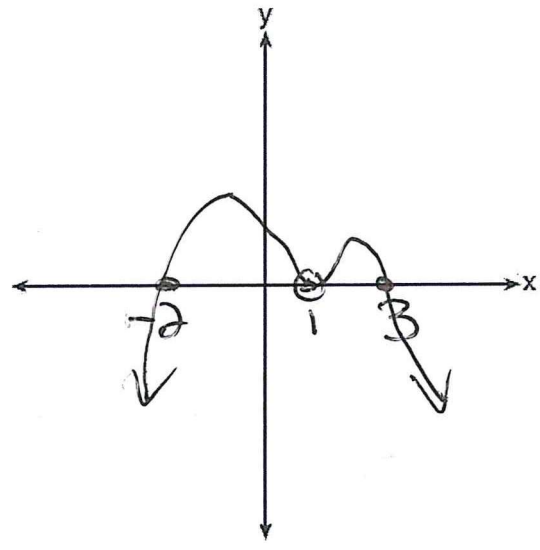
1. On the grid below, sketch a cubic polynomial whose zeros are 1, 3, and -2.



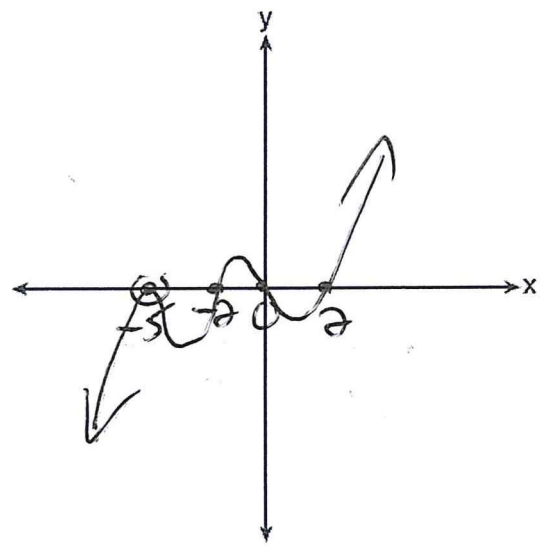
2. The zeros of a quartic polynomial function are 2, -2, 4, and -4. Use the zeros to construct a possible sketch of the function, on the set of axes below.



3. The zeros of a quartic polynomial function h are $-2, 1, 1,$ and 3 . Sketch a graph of $y = h(x)$ on the grid below.

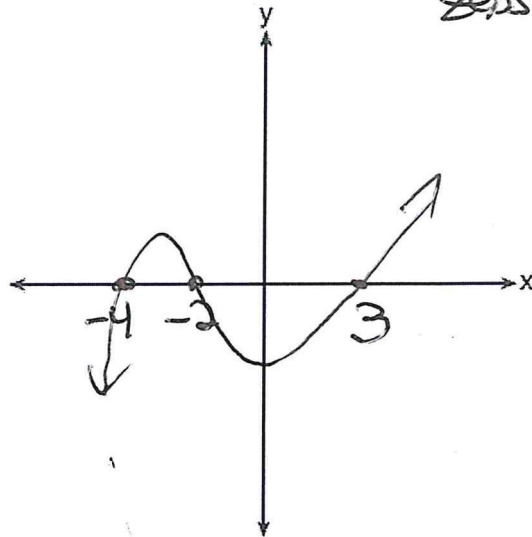


4. The zeros of a polynomial function are $-5, -5, \pm 2,$ and 0 . Sketch a graph of the polynomial functions on the grid below.



5. On the grid below, sketch a cubic polynomial whose factors are $x-3$, $x+4$, and $x+2$.

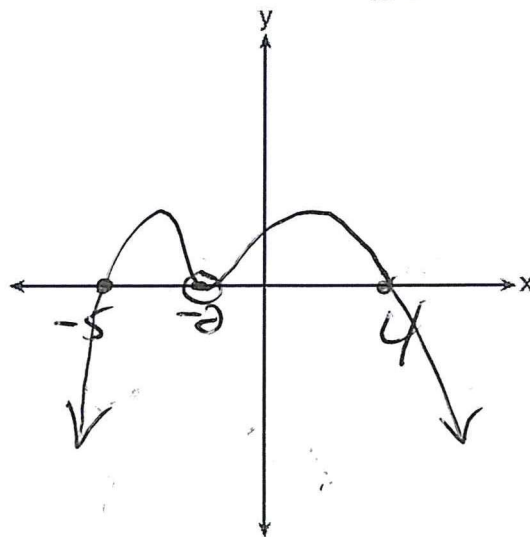
zeros: 3, -4, -2



6. On the grid below, sketch a quartic polynomial whose factors are $x+5$, $x+2$, $x+2$, and $x-4$.

zeros: -5, -2, -2, 4

double root, bounce



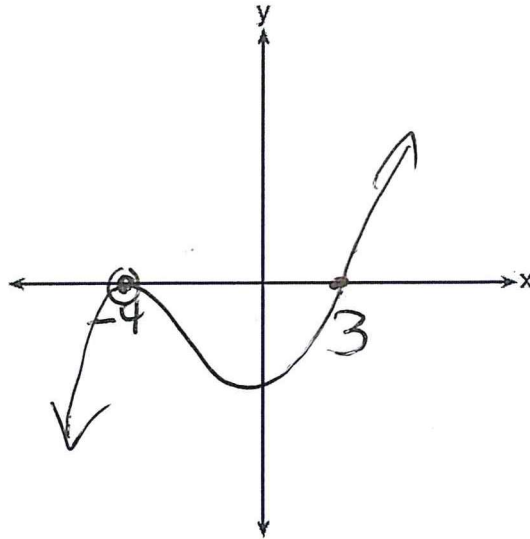
7. On the grid below, sketch a cubic polynomial whose factors are $x-3$ and $x^2+8x+16$.

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

$$(x+4)^2$$

zeros: 3, 4, 4

↓
double root
bounce



8. On the grid below, sketch a quartic polynomial whose factors are x^2-4x+4 and $x^2+10x+25$.

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

$$(x+5)^2$$

$$(x-2)(x-2)$$

$$(x-2)^2$$

zeros
-5, -5, 2, 2

double roots
bounce

