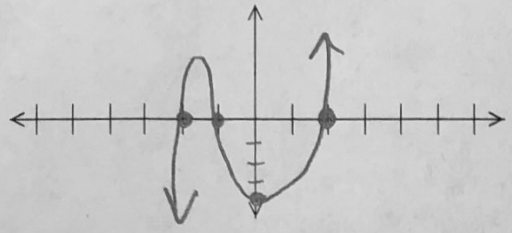
Name Key

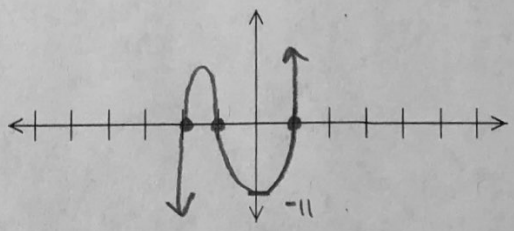
Period _____ Date _____

Find *all* roots of the polynomial, then graph the polynomial on the given axes.

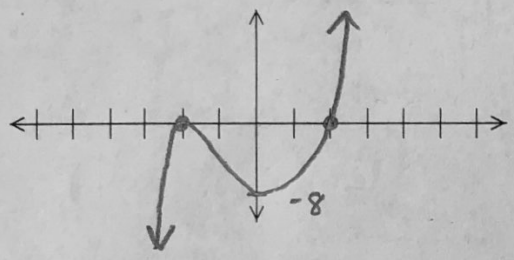
1. $x^3 + x^2 - 4x - 4$



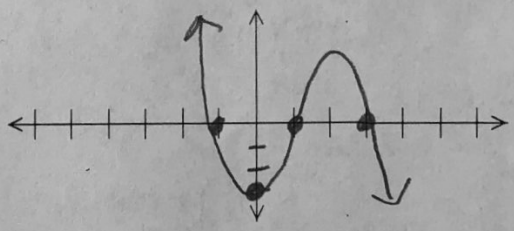
2. $6x^3 + 11x^2 - 6x - 11$



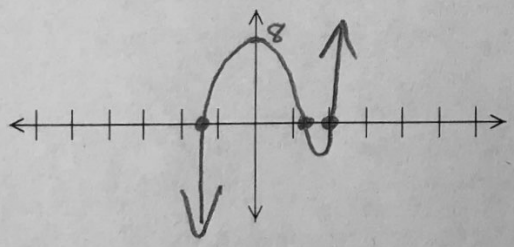
3. $x^3 + 2x^2 - 4x - 8$



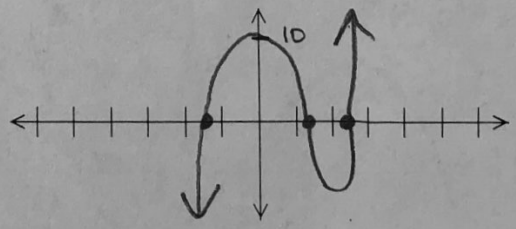
4. $-x^3 + 3x^2 + x - 3$



5. $2x^3 - 4x^2 - 4x + 8$



6. $2x^3 - 5x^2 - 4x + 10$



Write a polynomial that fits the given description.

7. The only roots are $x = 3, -2$, and 1

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

8. The only roots are $x = 5$ (multiplicity 1) and -4 (multiplicity 2)

$y = (x-5)(x+4)^2$

9. The only roots are $x = 5, -3, \frac{1}{2}$, and $\frac{3}{4}$
The y-intercept is 90

$90 = a(x-5)(x+3)(2x-1)(4x-3)$

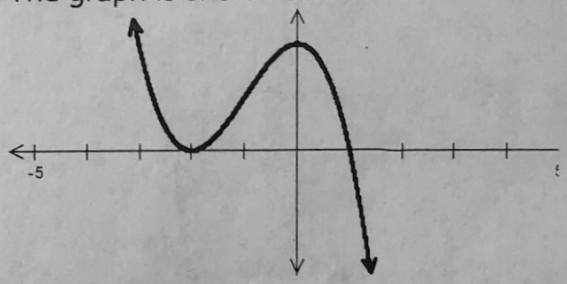
$90 = a(-5)(3)(-1)(-3)$

$90 = -45a$

$-2 = a$

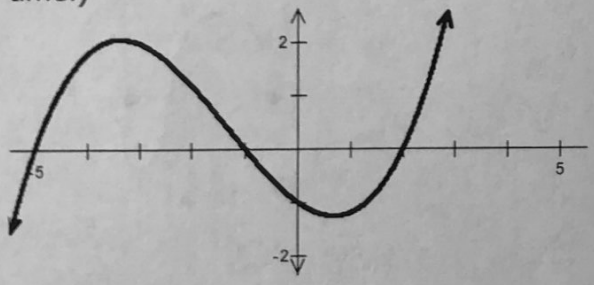
$y = -2(x-5)(x+3)(2x-1)(4x-3)$

10. The graph is shown below:



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

11. The graph is shown below.
(Note that the y-axis has a scale this time!)



$-1 = a(x+5)(x+1)(x-2)$

$-1 = a(5)(1)(-2)$

$1/10 = a$

$y = 1/10(x+5)(x+1)(x-2)$