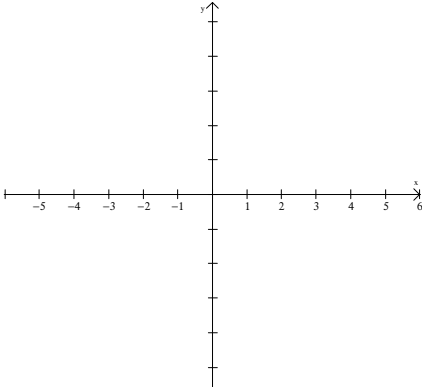
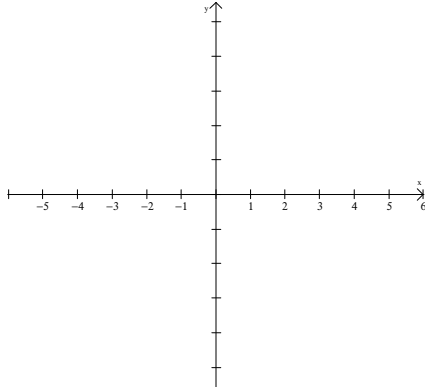
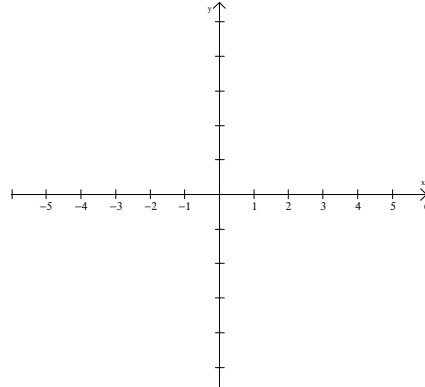
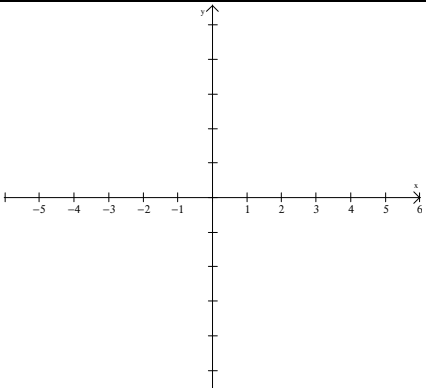
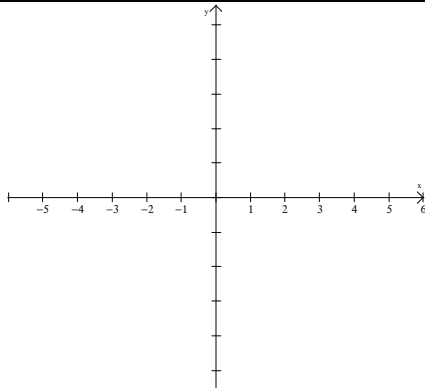
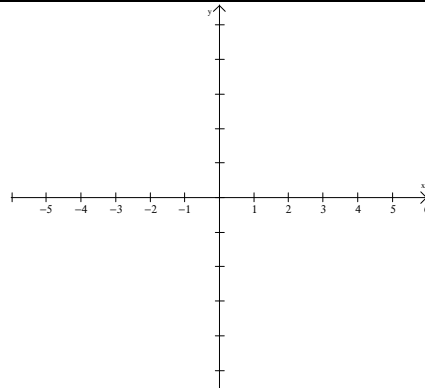
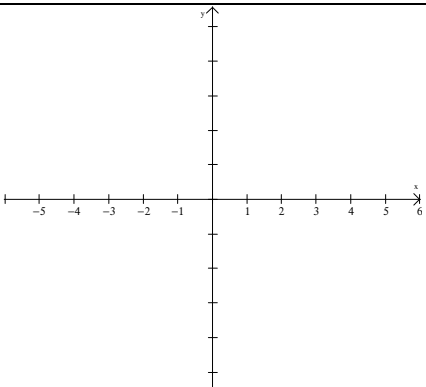
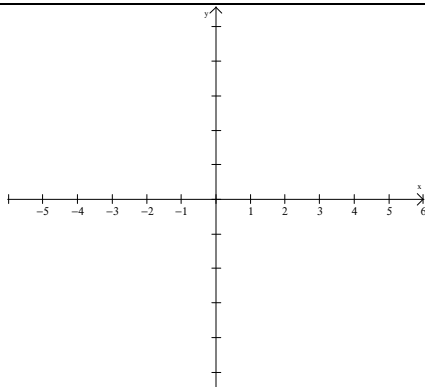
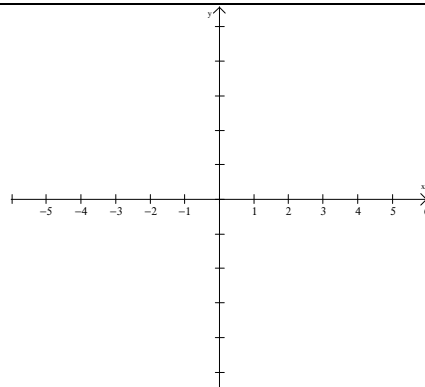


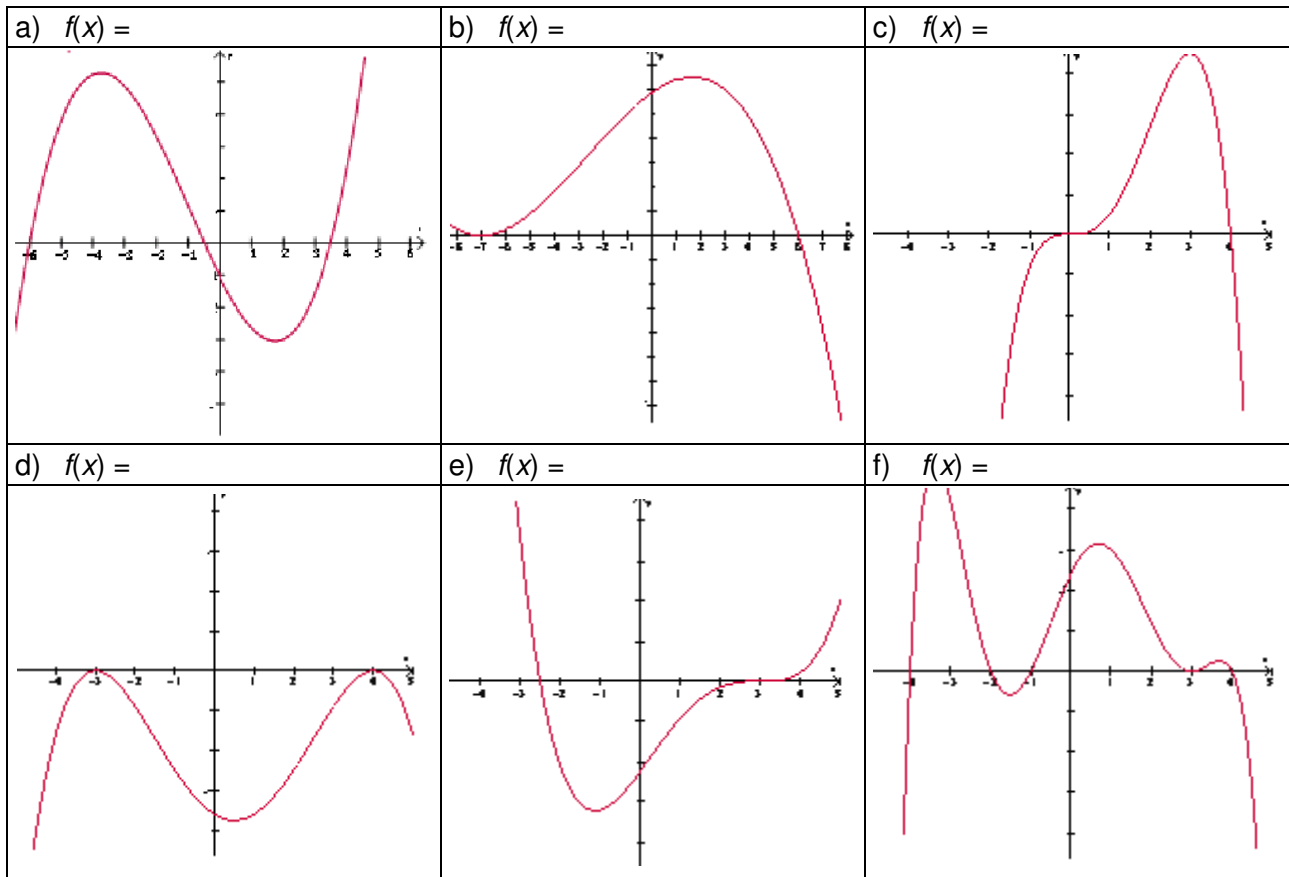
Factoring in our Graphs

Draw a sketch of each graph using the properties of polynomial functions. After you complete each sketch, check with your partner, discuss your strategies, and make any corrections needed.

a) $f(x) = (x - 4)(x + 3)$ 	d) $f(x) = -(x - 1)(x + 4)(x - 1/2)$ 	c) $f(x) = (2x - 1)(x + 1)^2$ 
e) $f(x) = 2x(x - 2)^3$ 	d) $f(x) = -(2x - 3)^2(x + 2)^2$ 	f) $f(x) = x(x - 2)(x + 1)(2x + 3)$ 
g) $f(x) = x^3(x - 4)$ 	h) $f(x) = -(x + 3)^2(x - 3)^3$ 	i) $f(x) = x(x + 2)(x - 1)(x - 3)(x + 4)$ 

What's My Polynomial Name?

1. Determine a possible equation for each polynomial function.

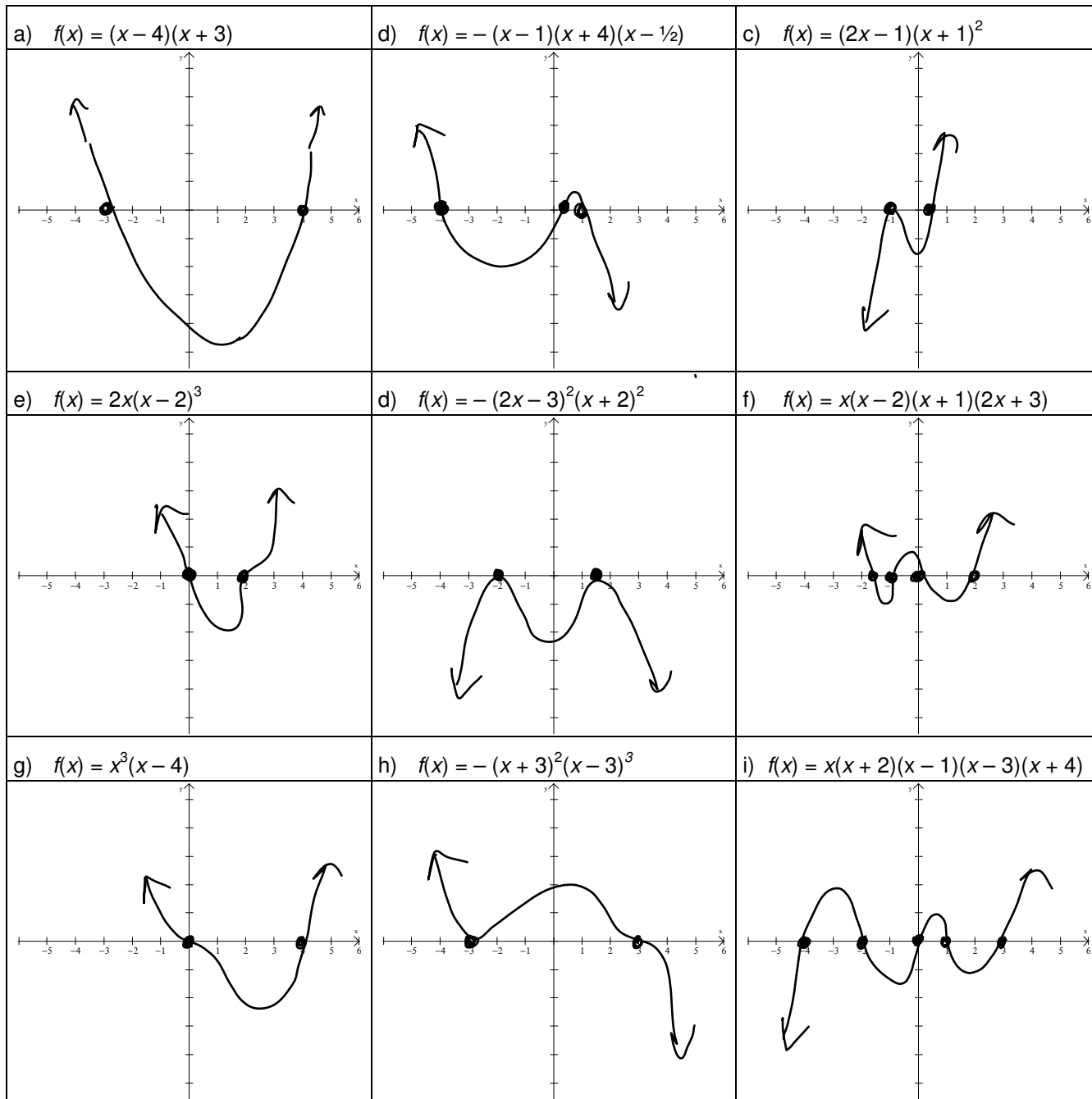


2. Determine an example of an equation for a function with the following characteristics:

- Degree 3, a double root at 4, a root at -3 _____
- Degree 4, an inflection point at 2, a root at 5 _____
- Degree 3, roots at $\frac{1}{2}, \frac{3}{4}, -1$ _____
- Degree 3, starting in quadrant 2, ending in quadrant 4, root at -2 and double root at 3 _____
- Degree 4, starting in quadrant 3, ending in quadrant 4, double roots at -10 and 10 _____

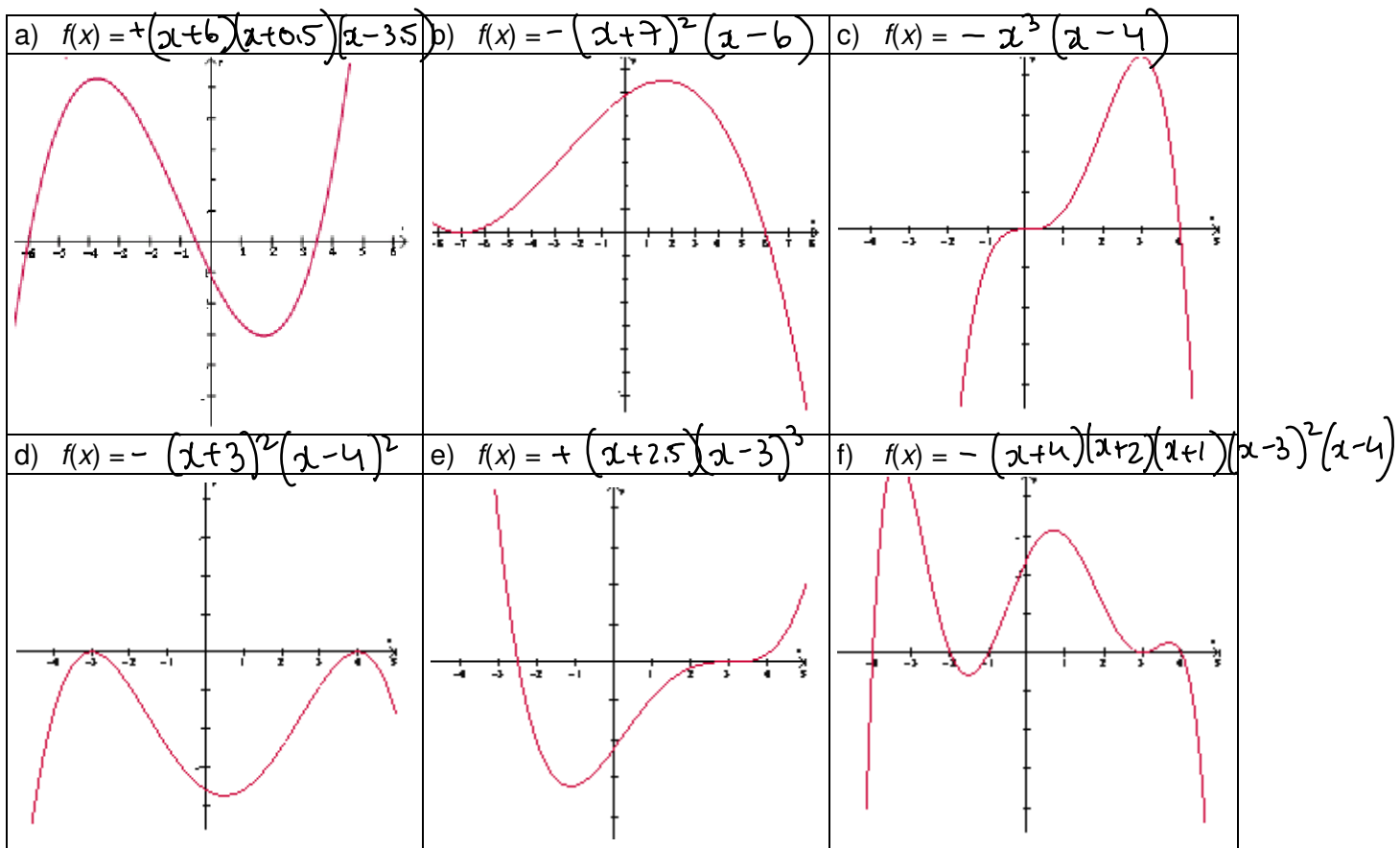
Factoring in our Graphs - SOLUTIONS

Draw a sketch of each graph using the properties of polynomial functions. After you complete each sketch, check with your partner, discuss your strategies, and make any corrections needed.



What's My Polynomial Name? – SOLUTIONS

1. Determine a possible equation for each polynomial function.



2. Determine an example of an equation for a function with the following characteristics:

a) Degree 3, a double root at 4, a root at -3 $y = a(x-4)^2(x+3)$

b) Degree 4, an inflection point at 2, a root at 5 $y = a(x-2)^3(x-5)$

c) Degree 3, roots at $\frac{1}{2}, \frac{3}{4}, -1$ $y = a(x-\frac{1}{2})(x-\frac{3}{4})(x+1)$

d) Degree 3, starting in quadrant 2, ending in quadrant 4, root at -2 and double root at 3 $y = -(x+2)(x-3)^2$

e) Degree 4, starting in quadrant 3, ending in quadrant 4, double roots at -10 and 10 $y = -(x+10)^2(x-10)^2$