Name: _____

5.1.D4 − Writing Polynomial Functions

Date: _____ Period: _____

Find a formula for the polynomial whose graph is shown or described.

1.

2.

3.

4.

(2,-16)
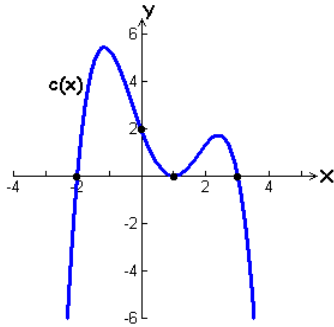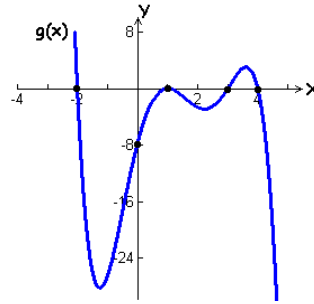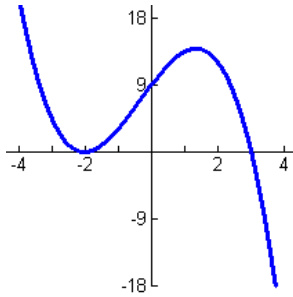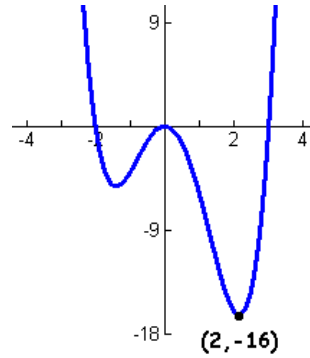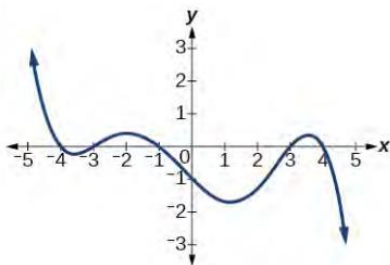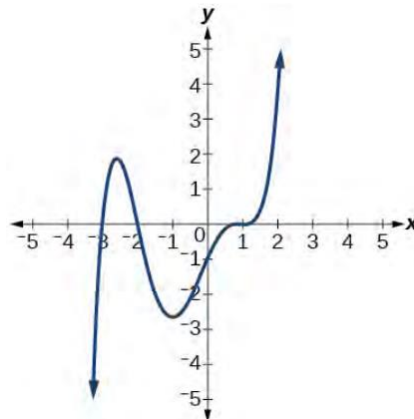
5. Degree 4; zeros at $x = 1$ & $x = -2$ & $x = 4$ multiplicity 2; y-intercept of $(0, -3)$

6. Degree 5; double zero at $x = 1$; triple zero at $x = 3$; passes through the point $(2, 15)$

7.

8.

For each polynomial, fill-in any indicated boxes. Sketch the polynomial described **AND** write its formula in factored form.

9.

SKETCH:

END BEHAVIOR:

$$\lim_{x\to-\infty} f(x) = \qquad \lim_{x\to\infty} f(x) =$$

$$\infty \qquad\qquad -\infty$$

y-intercept: $(0, 12)$

Function Formula:

x-intercepts:

ZERO	MULTI.	CROSS/ TOUCH
2	1	
-3	2	

10.
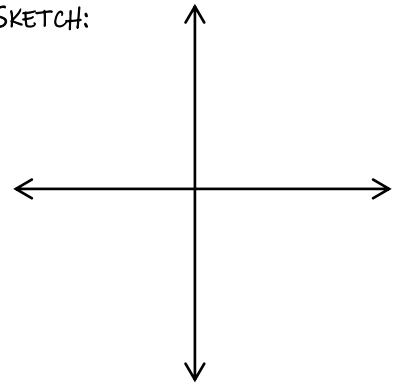
SKETCH:

LEADING TERM: *even & negative*

END BEHAVIOR:

$\lim\limits_{x\to-\infty} f(x)$	$\lim\limits_{x\to\infty} f(x)$

y-intercept < 0

PASSES THROUGH $(3, 128)$

Function Formula:

x-intercepts:

ZERO	MULTI.	CROSS/ TOUCH
-5	2	
2	1	
4	1	

Chapter 5: Polynomial, Power, & Rational Functions