

Binomials, GCF, Sequences, & Quadratics

Show all your work and reasoning. Use a pencil and highlight your answers.

1. Simplify the following expressions.

a) $(2a + 5)(3a - 1)$

b) $(2 - x)(x - 4)$

c) $(4x - y)(2x + y)$

d) $(7t - 5)(7t + 5)$

e) $(3x - 2)^2$

f) $(x - 1)(x^2 - 2x + 3)$

2. Given each table,

- Determine whether the function is linear, exponential, or neither. Explain how you know.
- Determine both the recursive and explicit formulas. If the function is neither, try your best to write explicit and recursive formulas.

a)

x	$f(x)$
3	17
4	14
5	11
6	8

Type of function & justification:

Explicit:

Recursive:

b)

x	$f(x)$
-2	8
-1	2
0	0
1	2

Type of function & justification:

Explicit:

Recursive:

c)

x	$f(x)$
5	40
6	20
7	10
8	5

Type of function & justification:

Explicit:

Recursive:

3. Find the greatest common factor (GCF).

a) $3x^2, 4x^3, 12x$

b) $10a^2b, 15ab^2$

c) $12m^2n^2, 36m^3n$

d) $17x^3y^4, 34x^5y^6$

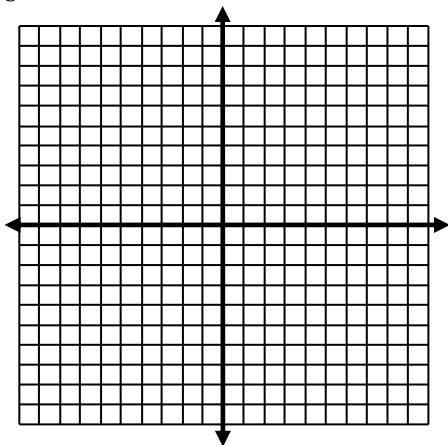
e) $9p^5q, 28ab, 5x^2y^2$

f) $24x^7y^4z^2, 18x^3yz^4, 9x^4z^2$

4. Fill in the table to help you graph the function. Be sure to completely label your graph.

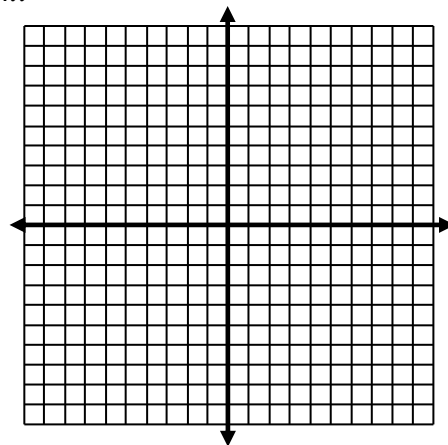
a) $f(x) = 2x^2 - 8$

x	$f(x)$
-3	
-2	
-1	
0	
1	
2	
3	



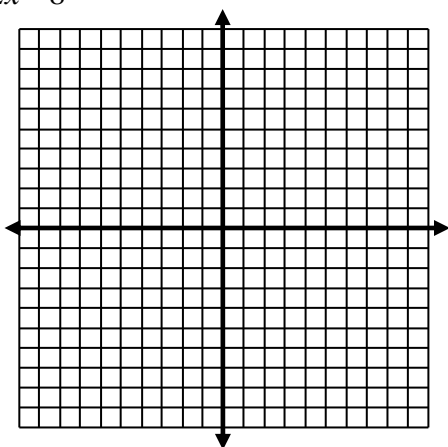
b) $f(x) = x^2 + 4x$

x	$f(x)$
-6	
-5	
-4	
-3	
-2	
-1	
0	
1	
2	



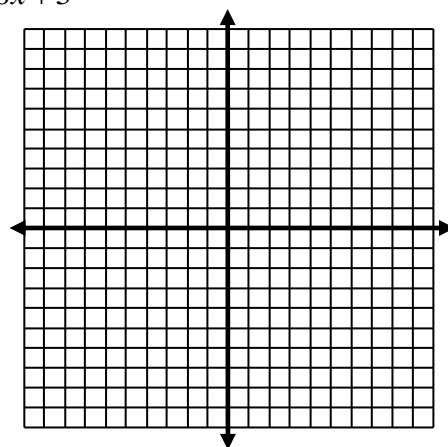
c) $f(x) = x^2 - 2x - 8$

x	$f(x)$
-3	
-2	
-1	
0	
1	
2	
3	
4	
5	



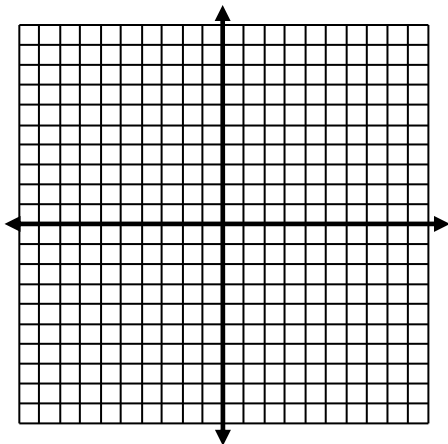
d) $f(x) = x^2 - 6x + 5$

x	$f(x)$
-1	
0	
1	
2	
3	
4	
5	
6	
7	



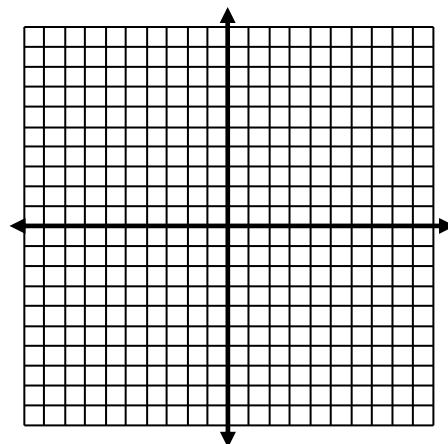
e) $f(x) = 2^x - 6$

x	$f(x)$
-4	
-3	
-2	
-1	
0	
1	
2	
3	
4	



f) $f(x) = \left(\frac{1}{2}\right)^x + 1$

x	$f(x)$
-3	
-2	
-1	
0	
1	
2	
3	
4	



5. From problem #4, which functions appear to be similar? Explain your reasoning.