Math on the Fly!

NAME: _____ DATE: _____

Transformations of Functions

In each problem, the original function f(x) is shifted to produce g(x).
Describe the transformations that occurred to create g(x).

1. $f(x) = x^2$
$g(x) = x^2 - 9$

2. $f(x) = |x|$
$g(x) = |x - 8|$

3. $f(x) = \cos(x)$
$g(x) = -\cos(x + 6)$

4. $f(x) = \sin(x)$
$g(x) = -\sin(x) + 2$

5. $f(x) = x^2$
$g(x) = -(x - 3)^2 + 1$

6. $f(x) = |x|$
$g(x) = -|x + 1| + 3$

7. $f(x) = \cos(x)$
$g(x) = \cos(x - 4) - 7$

8. $f(x) = \sin(x)$
$g(x) = \sin(x + 2) - 6$

A function f(x) passes through the point (2,5).

In each problem, find the new (x,y) coordinates of the point,
given the transformations of f(x).

9. $-f(x) - 8$

10. $f(x + 2) - 5$

11. $-f(x - 4)$

12. $f(x) + 9$

13. $f(x - 5) + 2$

14. $f(x + 3)$

SOLUTIONS

1. Down 9

2. Right 8

3. Reflection over x–axis, Left 6

4. Reflection over x–axis, Up 2

5. Reflection over x–axis, Right 3, Up 1

6. Reflection over x–axis, Left 1, Up 3

7. Right 4, Down 7

8. Left 2, Down 6

9. (2,–13)

10. (0,0)

11. (6,–5)

12. (2,14)

13. (7,7)

14. (–1,5)