# Ottocento Lesson #5 Function Translations Worksheet

Video Solutions at: https://youtu.be/yT8Zka8UlJQ

Question 1

The function f is defined by $f(x) = 5x^4$ . In the xy-plane, the graph of y = g(x) is the result of shifting the graph of y = f(x) up 2 units. Which equation defines function g?

A) $g(x) = \frac{5}{2}x^4$

B) $g(x) = 5x^2$

C) $g(x) = 5x^4 + 2$

D) $g(x) = 5x^4 - 2$

Question 2

The function f is defined by $f(x) = 3(2)^x$ . In the xy-plane, the graph of y = g(x) is the result of shifting the graph of y = f(x) left 5 units. Which equation defines function g?

A) $g(x) = 3(2)^x + 5$

B) $g(x) = 3(2)^{x+5}$

C) $g(x) = 3(2)^x - 5$

D) $g(x) = 3(2)^{x-5}$

Question 3

The function f is defined by:

$$f(x) = x\sqrt{x+5}$$

In the xy-plane, the graph of y = g(x) is the result of translating the graph of y = f(x) up 8 units. What is the value of g(4)?

Question 4

The function f is defined by:

$$f(x) = -4x - 7$$

In the xy-plane, the graph of y = g(x) is the result of translating the graph of y = f(x) right 3 units and down 9 units. What is the value of x when g(x) = -8 ?

Question 5

The graph of $4x - 3y = 10$ is translated left 5 units in the xy-plane. What is the x-coordinate of the x-intercept of the resulting graph?

Question 6

The graph of $-7x - 8y = 13$ is translated up 2 units in the xy-plane. What is the y-coordinate of the y-intercept of the resulting graph?

Question 7

The graph of 6x + 3y = -19 is translated right 1 unit and down 3 units in the xy-plane. What is the x-coordinate of the x-intercept of the resulting graph?

Question 8

$$f(x) = 2(x + 3)^2 - 8$$

The equation above can be represented by a parabola in the xy-plane. The parabola is then translated so that the vertex is at (1, -5). Which of the following best describes the translation?

A) 3 units in the negative x direction and 4 units in the negative y direction
B) 3 units in the negative x direction and 4 units in the positive y direction
C) 4 units in the positive x direction and 3 units in the negative y direction
D) 4 units in the positive x direction and 3 units in the positive y direction

Question 9

$$f(x) = -4x^2 - 72x + 7$$

The function g is defined by g(x) = f(x – 5). For what value of x does g(x) reach its maximum?

Question 10

$$x^2 + (y - 6)^2 = 81$$

The equation above represents Circle A. Circle B is obtained by shifting Circle A down 3 units in the xy-plane. Which of the following equations represents Circle B?

A) $x^2 + (y - 9)^2 = 81$
B) $x^2 + (y - 3)^2 = 81$
C) $x^2 + (y - 3)^2 = 9$
D) $(x + 3)^2 + y^2 = 81$