Transformations of Plynomial Functions

*** original function example is $f(x) = x^3$

Horizonal translation - left or right

Vertical translation - up or down

Transformations of Plynomial Functions

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Reflection over the *x*-axis

Reflection over the *y*-axis

Transformations of Plynomial Functions

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Horizontal stretch or shrink
$f(ax)$

Vertical stretch or shrink
$a * f(x)$

Which of the following is a translation of the function $f(x) = 5x^2 - 8x - 6$ to the right 3 units?

a. $g(x) = 5x^2 - 8x - 9$

b. $g(x) = 5x^2 - 38x + 63$

c. $g(x) = 5x^2 - 8x - 3$

d. $g(x) = 5x^2 + 22x + 15$

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Which translation of the function $f(x) = -6x^2 - 4x + 7$ results in the function $g(x) = -6x^2 - 4x + 4$?

a. down 3 units
b. up 3 units
c. left 3 units
d. right 3 units

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Which of the following is a translation of the function $f(x) = 7x^2 - 6x - 6$ up 7 units?

a. $g(x) = 7x^2 + 92x + 295$
b. $g(x) = 7x^2 - 6x + 1$
c. $g(x) = 7x^2 - 6x - 13$
d. $g(x) = 7x^2 - 104x + 379$

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Which tranformation of the function $f(x) = -32x^2 - 16x + 8$ results in the function $g(x) = -128x^2 - 64x + 32$?

a. horizontal shrink by a factor of 1 / 4
b. horizontal stretch by a factor of 4
c. vertical stretch by a factor of 4
d. vertical shrink by a factor of 1 / 4

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Which of the following functions is a tranformation of a horizontal stretch by a factor of 3 to the function $f(x) = -36x^2 - 12x - 12$?

a. $g(x) = -12x^2 - 4x - 4$
b. $g(x) = -324x^2 - 36x - 12$
c. $g(x) = -4x^2 - 4x - 12$
d. $g(x) = -108x^2 - 36x - 36$

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Which of the following is a coordinate location for a reflection over the x-axis of the function $f(x) = 2x^2 - 7x + 3$?

a. $(-1, -12)$
b. $(-5, -87)$
c. $(-6, -118)$
d. $(-3, -43)$

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Which of the following is a coordinate location for a reflection over the y-axis of the function $f(x) = 9x^2 - 7x + 6$?

a. $(0, 5)$
b. $(3, 108)$
c. $(8, 637)$
d. $(4, 177)$

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Which of the following is a translation of the function $f(x) = -9x^2 + 2x + 5$ to the left 6 units?

a. $g(x) = -9x^2 + 2x + 11$
b. $g(x) = -9x^2 - 106x - 307$
c. $g(x) = -9x^2 + 2x - 1$
d. $g(x) = -9x^2 + 110x - 331$

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Which translation of the function $f(x) = -6x^2 - 3x - 9$ results in the function $g(x) = -6x^2 + 45x - 93$?

a. down 4 units
b. right 4 units
c. up 4 units
d. left 4 units