

Comparing Functions

{ 6.6 }

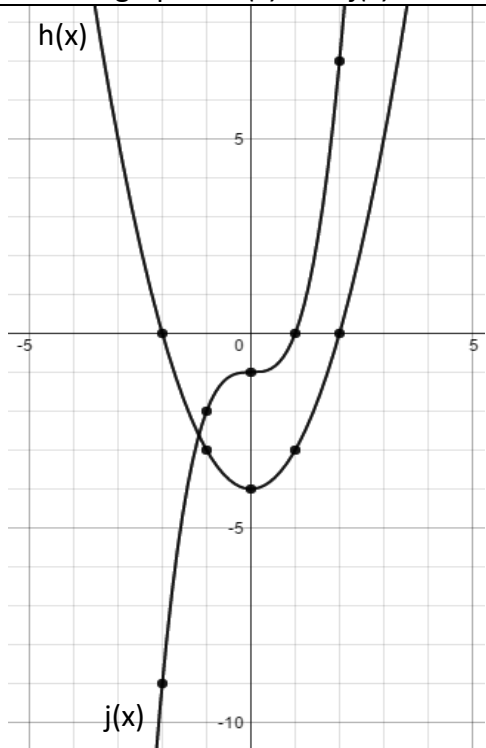
Secondary Math II Notes

OBJECTIVE: Evaluate functions when multiple operations are given.

Compare Functions: In order to compare functions, first evaluate each function and compare the y-values as either greater than (or equal too), less than (or equal too), or equal to each other.

Comparing Functions Graphically

Use the graph of $h(x)$ and $j(x)$ to answer the following questions



Fill in the box with the appropriate inequality symbol.

$$h(-1) + j(-2) \quad \square \quad j(2) - h(1)$$

$$-3 + -9 = -12 \quad < \quad 7 - -3 = 10$$

Fill in the box with the appropriate inequality symbol.

$$(j \circ j)(0) + 4 \quad \square \quad -5(j - h)(0)$$

$$-2 + 4 = 2 \quad < \quad -5(-1 + -4) = 25$$

Fill in the box with the appropriate inequality symbol.

$$h(j(0)) + 2h(-3) \quad \square \quad (j + h)(0) * (h(3) + 3)$$

$$-4 + 10 = 6 \quad > \quad -5 * 8 = -40$$

Fill in the box with the appropriate inequality symbol.

$$h(j(h(2))) * j(2) \quad \square \quad 3(j - h)(2) * (j + h)(-2)$$

$$-3 * 7 = -21 \quad > \quad 3(7 - 0) * (-9 + 0) = -189$$

Climb a mountain

Answer the odd problems. If the odd problem is incorrect, answer the problem directly to the right of it. **Formative assessment**

1.	$p(n) = 3n + 3$ Find $p(-6)$ $p(-6) = -15$	$g(x) = x + 4$ Find $g(4)$ $g(4) = 8$	3.	$p(x) = -x^2 - 5$ Find $p(r)$ $p(r) = -r^2 - 5$	$h(x) = -2x^2 - 4$ Find $h(a)$ $h(a) = -2a^2 - 4$
5.	$h(a) = 3a + 5$ $g(a) = 4a - 1$ Find $(h+g)(7)$ $(h+g)(7) = 53$	$f(x) = -2x + 5$ $g(x) = 2x$ Find $f(5)+g(5)$ $(f+g)(5) = 5$	7.	$h(a) = 3a + 5$ $g(a) = 4a - 1$ Find $(h+g)(b)$ $(h+g)(b) = 7b + 4$	$f(x) = -2x + 5$ $g(x) = 2x$ Find $f(c)+g(c)$ $(f+g)(c) = 5$

9.	$h(t) = 4t - 5$ $g(t) = t^2 - 3$ Find $(h+g)(-2r)$ $(h+g)(-2r) = 4r^2 - 8r - 8$	$f(t) = 2t + 4$ $g(t) = t^3 - 1$ Find $g(-3z)+f(-3z)$ $(g+f)(-3z) = -27z^3 - 6z + 3$	11.	$h(t) = 4t - 5$ $g(t) = t^2 - 3$ Find $(3h+g)(-7b)$ $(3h+g)(-7b) = 49b^2 - 84b - 18$	$f(t) = 2t + 4$ $g(t) = t^3 - 1$ Find $g(4z)+5f(4z)$ $(g+5f)(4z) = 64z^3 + 40z + 19$
13.	$h(a) = 13a - 5$ $g(a) = 2a + 1$ Find $(g-h)(3)$ $(g-h)(3) = -27$	$f(x) = 12x + 5$ $g(x) = 6$ Find $f(4)-g(4)$ $(f-g)(4) = 47$	15.	$h(a) = 13a - 5$ $g(a) = 2a + 1$ Find $h(x)-g(x)$ $(h-g)(x) = 11x - 6$	$f(x) = 12x + 5$ $g(x) = 6$ Find $(g-f)(a)$ $(g-f)(a) = -12a - 1$
17.	$h(t) = -t - 7$ $g(t) = -t^2 + 2$ Find $(h-g)(4r)$ $(h-g)(4r) = 16r^2 - 4r - 9$	$f(t) = 3t + 4$ $g(t) = -2t^3 - 11$ Find $f(2a)-g(2a)$ $(f-g)(2a) = 16a^3 + 6a + 15$	19.	$h(t) = -t - 7$ $g(t) = -t^2 + 2$ Find $g(-3c)-2h(-3c)$ $(g-2h)(-3c) = -9c^2 - 6c + 16$	$f(t) = 3t + 4$ $g(t) = -2t^3 - 11$ Find $(3g-f)(-2z)$ $(3g-f)(-2z) = 48z^3 + 6z - 37$
21.	$f(t) = t - 3$ $g(t) = t + 4$ Find $(fg)(-1)$ $(fg)(-1) = -12$	$f(x) = 4x - 1$ $g(x) = 2x + 2$ Find $f(2) \cdot g(2)$ $(fg)(2) = 42$	23.	$g(t) = t - 5$ $h(t) = t^2 + 4t$ Find $(h \cdot g)(b)$ $(h \cdot g)(b) = b^3 - b^2 - 20b$	$f(x) = 3x$ $g(x) = -2x + 2$ Find $(fg)(c)$ $(fg)(c) = -6c^2 + 6c$

25.	$h(t) = t - 3$ $g(t) = t + 4$ Find $(h \cdot g)(-2a)$ $(h \cdot g)(-2a)$ $= 4a^2 - 2a - 12$	$f(x) = 4x - 1$ $g(x) = 2x + 2$ Find $g(-3z) \cdot f(-3z)$ $(gf)(-3z)$ $= 72z^2 - 18z - 1$	27.	$g(t) = t - 5$ $h(t) = t^2 + 4t$ Find $(h \cdot 2g)(-b)$ $(h \cdot 2g)(-b)$ $= -2b^3 - 2b^2 + 40b$	$f(x) = 3x$ $g(x) = -2x + 2$ Find $g(-z) \cdot 5f(-z)$ $g(-z) \cdot 5f(-z)$ $= -30z^2 - 30z$
29.	$g(n) = 3n + 2$ $f(n) = 2n^2 + 5$ Find $f(g(2))$ $f(g(2)) = 133$	$h(x) = 3x^2 - 2$ $g(x) = 4x + 1$ Find $h(g(5))$ $h(g(5)) = 1321$	31.	$h(x) = -x^2 - 2x$ $g(x) = 4x$ Find $(h \circ g)(-2)$ $h(g(-2)) = -48$	$g(t) = 2t$ $f(t) = -t^2 + 5x$ Find $(f \circ g)(-3)$ $f(g(-3)) = -66$
33.	$g(n) = 3n + 2$ $f(n) = 2n^2 + 5$ Find $g(g(r))$ $g(g(r)) = 9r + 8$	$h(x) = 3x^2 - 2$ $g(x) = 4x + 1$ Find $g(g(z))$ $g(g(z)) = 16z + 5$	35.	$h(x) = -x^2 - 2$ $g(x) = 4x + 1$ Find $g(h(2a))$ $g(h(2a)) = -16a^2 - 7$	$g(t) = 2t + 5$ $f(t) = -t^2 + 5$ Find $g(f(3b))$ $g(f(3b)) = -18b^2 + 15$
37.	$f(x) = 4x - 1$ $g(x) = 2x + 2$ Find $f(g(2)) + (fg)(-1)$ $f(g(2)) + (fg)(-1)$ $= 23$	$f(x) = 3x$ $g(x) = -2x + 2$ Find $f(2) \cdot g(2) + (h \circ g)(-1)$ $f(2) \cdot g(2) + (h \circ g)(-1)$ $= -12$	39.	$h(x) = -x^2 - 2x$ $g(x) = 4x$ Find $(h - g)(1) + g(3)$ $(h - g)(1) + g(3) = 5$	$g(n) = 3n + 2$ $f(n) = 2n^2 + 5$ Find $f(2) - (g + f)(3)$ $f(2) - (g + f)(3)$ $= -10$