

State whether the following functions are inverses. (Yes or No)

<p>1. $h(x) = \frac{-x-5}{9}$ $f(x) = 5x + 15$</p> $h(f(x)) = \frac{-(5x+15)-5}{9}$ $= \frac{-5x-15-5}{9}$ $= \frac{-5x-20}{9}$ <p style="text-align: right;"><u>NO!</u></p>	<p>2. $g(x) = -5x - 5$ $f(x) = -1 - \frac{1}{5}x$</p> $g(f(x)) = -5(-1 - \frac{1}{5}x) - 5$ $= 5 + x - 5$ $= x$ $f(g(x)) = -1 - \frac{1}{5}(-5x - 5)$ $= -1 + x + 1$ $= x$ <p style="text-align: right;"><u>YES!</u></p>
<p>3. $f(x) = \sqrt[3]{x+3} + 1$ $g(x) = (x+2)^3$</p> $f(g(x)) = \sqrt[3]{(x+2)^3 + 3} + 1$ <p style="text-align: right;"><u>NO!</u></p>	<p>4. $f(x) = -\frac{3}{4}x - 3$ $h(x) = 3x - 4$</p> $f(h(x)) = -\frac{3}{4}(3x - 4) - 3$ $= -\frac{9}{4}x + 3 - 3$ $= -\frac{9}{4}x$ <p style="text-align: right;"><u>NO!</u></p>
<p>5. $g(x) = x + 4$ $f(x) = 2 + \frac{1}{2}x$</p> $g(f(x)) = 2 + \frac{1}{2}x + 4$ $= 6 + \frac{1}{2}x$ <p style="text-align: right;"><u>NO!</u></p>	<p>6. $f(x) = -\frac{2}{7}x + \frac{4}{7}$ $h(x) = 2 - \frac{7}{2}x$</p> $f(h(x)) = -\frac{2}{7}(2 - \frac{7}{2}x) + \frac{4}{7}$ $= -\frac{4}{7} + x + \frac{4}{7}$ $= x$ $h(f(x)) = 2 - \frac{7}{2}(-\frac{2}{7}x + \frac{4}{7})$ $= 2 + x - 2 = x$ <p style="text-align: right;"><u>YES!</u></p>
<p>7. $f(x) = \sqrt[5]{x+2} - 2$ $g(x) = (x+2)^5 - 2$</p> $f(g(x)) = \sqrt[5]{(x+2)^5 - 2 + 2} - 2$ $= \sqrt[5]{(x+2)^5} - 2$ $= x + 2 - 2$ $= x$ <p style="text-align: right;"><u>YES!</u></p> $g(f(x)) = (\sqrt[5]{x+2} - 2 + 2)^5 - 2$ $= (\sqrt[5]{x+2})^5 - 2$ $= x + 2 - 2$ $= x$	<p>8. $h(x) = \sqrt[5]{-x}$ $f(x) = -x^5$</p> $h(f(x)) = \sqrt[5]{-(-x^5)}$ $= \sqrt[5]{x^5}$ $= x$ <p style="text-align: right;"><u>YES!</u></p> $f(h(x)) = -(\sqrt[5]{-x})^5$ $= -(-x)$ $= x$

Reduce each fraction.

- Factor
- Cancel Common Factors (only "things" that are being MULTIPLIED!)

1. $\frac{3x}{6}$ $\frac{x}{2}$	2. $\frac{-9}{-12}$ $\frac{3}{4}$	3. $\frac{3x-9}{6x-12}$ $\frac{3(x-3)}{6(x-2)}$ $\frac{x-3}{2(x-2)}$
4. $\frac{2x}{6x}$ $\frac{1}{3}$	5. $\frac{6}{30}$ $\frac{1}{5}$	6. $\frac{2x-6}{6x-30}$ $\frac{2(x-3)}{6(x-5)}$ $\frac{x-3}{3(x-5)}$
7. $\frac{4x-8}{x-2}$ $\frac{4(x-2)}{x-2}$ 4	8. $\frac{x-3}{x-6}$	9. $\frac{10m+2}{10m-4}$ $\frac{2(5m+1)}{2(5m-2)}$ $\frac{5m+1}{5m-2}$
10. $\frac{2x+4}{6x-5}$ $\frac{2(x+2)}{6x-5}$	11. $\frac{10k^2+25k}{25k^2-20k}$ $\frac{5k(2k+5)}{5k(5k-4)}$ $\frac{2k+5}{5k-4}$	12. $\frac{2x-6}{3x-9}$ $\frac{2(x-3)}{3(x-3)}$ $\frac{2}{3}$
13. $\frac{a-2}{2a^2}$	14. $\frac{10v+15}{10v+20}$ $\frac{5(2v+3)}{10(v+2)}$ $\frac{2v+3}{2(v+2)}$	15. $\frac{6b+3}{15b-9}$ $\frac{3(2b+1)}{3(5b-3)}$ $\frac{2b+1}{5b-3}$