Bellwork Alg 2 Thursday, September 26, 2019

For each of the given functions find the equation of the inverse by rewriting the equation after switching x and y then solving the new equation for y. You do not have to simplify the answers.

1. $y = \frac{3x-7}{8} + 11$

2. $y = 5(1+x)^3 + 6$

3. $y = \sqrt{\frac{12-5x}{10}} + 3$

Bellwork Alg 2 Thursday, September 26, 2019 ANSWERS

For each of the given functions find the equation of the inverse by rewriting the equation after switching x and y then solving the new equation for y. You do not have to simplify the answers.

1. $y = \frac{3x-7}{8} + 11$

$x = \frac{3y-7}{8} + 11$

$-11 \qquad -11$

$8(x-11) = \frac{3y-7}{8} \cdot 8$

$8(x-11) = 3y-7$

$+7 \qquad +7$

$\frac{8(x-11)+7}{3} = \frac{3y}{3}$

$y = \frac{8(x-11)+7}{3}$

2. $y = 5(1+x)^3 + 6$

$x = 5(1+y)^3 + 6$

$-6 \qquad -6$

$\frac{x-6}{5} = \frac{5(1+y)^3}{5}$

$\sqrt[3]{\frac{x-6}{5}} = \sqrt[3]{(1+y)^3}$

$\sqrt[3]{\frac{x-6}{5}} = 1+y$

$-1 \qquad -1$

$y = \sqrt[3]{\frac{x-6}{5}} - 1$

3. $y = \sqrt{\frac{12-5x}{10}} + 3$

$x = \sqrt{\frac{12-5y}{10}} + 3$

$-3 \qquad -3$

$(x-3)^2 = \left(\sqrt{\frac{12-5y}{10}}\right)^2$

$10(x-3)^2 = \frac{12-5y}{10} \cdot 10$

$10(x-3)^2 = 12-5y$

$-12 \qquad -12$

$\frac{10(x-3)^2-12}{-5} = \frac{-5y}{-5}$

$y = \frac{10(x-3)^2-12}{-5}$