

Warm up - Unit 2

Find the inverse of each function.

1) $f(n) = -\frac{1}{n-2} - 1$

$f^{-1}(n) = \frac{1}{-n-1} + 2$

$$x = -\frac{1}{y-2} - 1$$

$$x+1 = -\frac{1}{y-2}$$

$$-x-1 = \frac{1}{y-2}$$

$$y-2 = \frac{1}{-x-1}$$

$y = \frac{1}{-x-1} + 2$

or
 $y^{-1} = \frac{-1}{x+1} + 2$

2) $f(x) = \frac{1}{x} + 2$

$x = \frac{1}{y-2}$

$f^{-1}(x) = \frac{1}{x-2}$

$y-2 = \frac{1}{x}$

$y = \frac{1}{x} + 2$

Solve each equation by completing the square.

3) $n^2 - 3n - 54 = 0$

{9, -6}

$n^2 - 3n + \frac{9}{4} = 54 + \frac{9}{4}$

$(n - \frac{3}{2})^2 = \frac{216}{4} + \frac{9}{4}$

$\sqrt{(n - \frac{3}{2})^2} = \sqrt{\frac{225}{4}} = \pm \frac{\sqrt{225}}{\sqrt{4}}$

$n - \frac{3}{2} = \pm \frac{15}{2}$

$n = \frac{3}{2} \pm \frac{15}{2}$

$n = \frac{3+15}{2} \quad n = \frac{3-15}{2}$

$\frac{18}{2} \quad \frac{-12}{2}$

$\{-6, 9\}$

4) $10p^2 + 15p - 16 = 9$

$(-\frac{3}{2})^2 = \frac{9}{4}$

$(1, -\frac{5}{2})$

$10p^2 + 15p - 25 = 0$

$p^2 + \frac{3}{2}p - \frac{5}{2} = 0$

$p^2 + \frac{3}{2}p + \frac{9}{16} = \frac{5}{2} + \frac{9}{16}$

$(p + \frac{3}{4})^2 = \frac{49}{16}$

$\sqrt{(p + \frac{3}{4})^2} = \sqrt{\frac{49}{16}} = \pm \frac{\sqrt{49}}{\sqrt{16}}$

$p + \frac{3}{4} = \pm \frac{7}{4}$

$p = -\frac{3}{4} \pm \frac{7}{4}$

$p = -\frac{3}{4} + \frac{7}{4}$

$= \frac{4}{4}$

$p = 1$

$p = -\frac{3}{4} - \frac{7}{4}$

$= \frac{-10}{4}$

$p = -\frac{5}{2}$

$\{-\frac{5}{2}, 1\}$