Functions 3.1
Algebra 2

For 1 - 4, use $t(x) = x^2 - 16$ and $v(x) = x + 4$.

1) Find $(t + v)(x)$ 2) Find $(t - v)(x)$ 3) Find $(t \cdot v)(x)$ 4) Find $\left(\dfrac{t}{v}\right)(x)$

For 5 - 12, use $c(x) = 3x$, $d(x) = x + 3$, $h(x) = x^2$, and $k(x) = x^2 - 2x$.

5) $(c \circ d)(x)$ 6) $(d \circ h)(x)$ 7) $(c \circ h)(x)$ 8) $(k \circ d)(x)$

9) $(d \circ c)(1)$ 10) $(h \circ d)(3)$ 11) $(c \circ h)(-1)$ 12) $(k \circ c)(-2)$

Find the inverse of each relation.
13) $\{(1, 2)\ (3, 4)\ (5, 6)\ (7, 8)\}$ 14) $\{(1, -1)\ (2, -2)\ (3, -3)\ (4, -4)\ (5, -5)\}$

Find the inverse of each function. Graph both the original function and its inverse.
15) $y = x + 3$ 16) $y = x - 5$ 17) $f(x) = 2x - 1$ 18) $y = x^2 + 2$

19) $f(x) = \dfrac{x}{2} - 3$ 20) $f(x) = (x - 1)^2$ 21) $y = \sqrt{x} + 3$ 22) $f(x) = \sqrt{x - 4}$

Are each pair of functions inverse functions?

23) $y = x + 2$ 24) $y = x^2 + 4$ 25) $y = 3x + 4$ 26) $y = \sqrt{x} - 2$

     $y = x - 2$ $y = x^2 - 4$ $y = \dfrac{x - 4}{3}$ $y = (x + 2)^2$