

February 17, 2017

$$9 - 3 \div \frac{1}{3} + 1 =$$

$$9 - 9 + 1$$

(1)

Feb 17-10:49 AM

2.8 the Algebra of Functions

$+, -, \times, \div$

Composition of Functions

$f(x) \neq g(x)$

$(f \circ g)(x) =$

Composition

$g(x) = 2x$ $h(x) = x^2 - 4x$ $k(x) = \sqrt{x-1}$

#1) $(g \circ k)(x) = g(k(x))$

$$= g(\sqrt{x-1})$$

$$= 2(\sqrt{x-1})$$

$$= 2\sqrt{x-1} \geq 0 \quad x \geq 1$$

Domain: $[1, \infty)$

Feb 17-11:03 AM

#4) $(h \circ k)(x) = h(k(x))$

$$= h(\sqrt{x-1})$$

$$= (\sqrt{x-1})^2 - 4(\sqrt{x-1})$$

$$= x-1 - 4\sqrt{x-1}$$

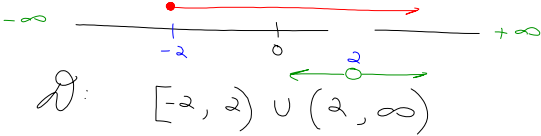
Domain: $[1, \infty)$

Feb 17-11:15 AM

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

① $x-2=0$
 $x=2 \rightarrow \text{no}, x \neq 2$

② $x+2 \geq 0$
 $x \geq -2$



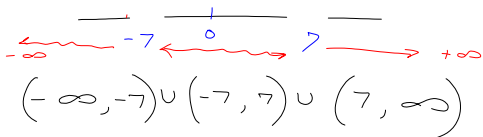
Domain: $[-2, 2) \cup (2, \infty)$

Feb 17-11:18 AM

$g(x) = \frac{x}{x^2 - 49} = 0$

$\sqrt{x^2} = \pm \sqrt{49}$

$x \neq \pm 7$



Domain: $(-\infty, -7) \cup (-7, 7) \cup (7, \infty)$

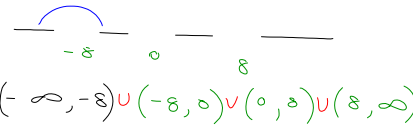
Feb 17-11:37 AM

$h(x) = \frac{x-3}{x^2 - 64x} = 0$

$x(x^2 - 64) = 0$

$x \neq 0$

$x = \pm 8$



Domain: $(-\infty, -8) \cup (-8, 0) \cup (0, 8) \cup (8, \infty)$

Feb 17-11:40 AM