

1. The entire graph of the function g is shown in the figure below. Write the domain and range of g as intervals or unions of intervals.

Domain: $(-1, 0) \cup (4, 5)$
 Range: $(-4, 3)$

2. Divide $\frac{-5-4i}{4+5i}$ Write your answer as a complex number in standard form. $i^2 = -1$

$$\frac{-5-4i}{4+5i} \cdot \frac{4-5i}{4-5i} = \frac{-20+25i-16i-20i^2}{16-20i+20i-25i^2}$$

$$= \frac{-20+9i+20}{16-25(-1)} = \frac{9i}{41}$$

$$\frac{5+9i}{41} = \frac{5}{41} + \frac{9}{41}i$$

Feb 11-9:47 AM

Below is the graph of $y = |x|$. Translate it to make it the graph of $y = |x-4| - 3$.

Feb 11-9:48 AM

1. State the equation to find Area of a rectangle.
2. Find $f(x)=2x + 1$ if $f(2)$
3. State the equation of a parabola.

Sep 16-9:24 AM

1. State the equation to find Area of a rectangle. $A = l \cdot w$
2. Find $f(x)=2x + 1$ if $f(2)$ $A = b \cdot h$
 $2(2) + 1 = 5$
3. State the equation of a parabola.
 $y = x^2$
 $y = (x-h)^2 + k$
 $y = ax^2 + bx + c$

Sep 16-9:24 AM

Notes 2.8 & 3.1
 Intro to Functions
 Finding a quotient
 $\frac{f(x+h) - f(x)}{h}$

$$f(x) = 4x^2 - 2$$

$$\frac{4(x+h)^2 - 2 - (4x^2 - 2)}{h}$$

$$\frac{4(x^2 + 2xh + h^2) - 2 - 4x^2 + 2}{h}$$

$$\frac{4x^2 + 8xh + 4h^2 - 2 - 4x^2 + 2}{h}$$

$$\frac{8xh + 4h^2}{h} = h(8x + 4)$$

Sep 16-9:48 AM

comp of functions

$$p(x) = x - 5$$

$$q(x) = -2x + 3$$

$f \circ g$
 $g \circ f$

$$(q \circ p)(-1) = -1 - 5 = -6$$

$$(p \circ q)(-1) = -2(-1) + 3 = 5$$

$$p(5) = 5 - 5 = 0$$

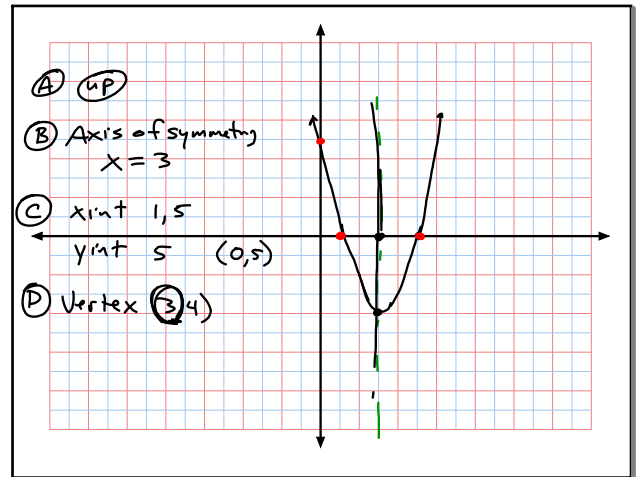
$$q(-2) = -2(-2) + 3 = 7$$

$$p(7) = 7 - 5 = 2$$

Sep 16-9:52 AM

$g(x) = \frac{x+6}{x-3}$
 $h(x) = 4x-9$
 $(g \circ h)(x) = \frac{4x-9+6}{4x-9-3} = \frac{4x-3}{4x-12}$
 Domain
 $4x-12=0 \quad (-\infty, 3) \cup (3, \infty)$
 $x=3$

Sep 16-9:54 AM



Sep 16-9:57 AM

$g(x) = -2x^2 + 8x - 12$
 - max
 What is max?
 $-2(2)^2 + 8(2) - 12 = -8 + 16 - 12 = 12$
 Where is max?
 $x = \frac{-b}{2a} = \frac{-8}{2(-2)} = \frac{-8}{-4} = 2$
 $x=2$

Sep 16-10:00 AM

$h(t) = -16t^2 + 100t$

Sep 16-10:04 AM

write equation of parabola

$y = a(x-h)^2 + k$
 $y = a(x+3)^2 - 4$
 $5 = a(-6+3)^2 - 4$
 $5 = a(-3)^2 - 4$
 $5 = 9a - 4$
 $+4$
 $9 = 9a$
 $\frac{9}{9} = \frac{9a}{9}$
 $a = 1$

Sep 16-10:07 AM

Graph parabola

$y = -2x^2 - 20x - 51$ vertex - 4 points
 2 left - 2 right

complete square

$y = -2x^2 - 20x - 51$
 $y = -2(x^2 + 10x + 25) - 51 + 50$
 $y = -2(x+5)^2 - 1$

$x = \frac{-b}{2a} = \frac{20}{-2(-2)} = \frac{20}{4} = 5$
 $y = -2(5)^2 - 20(5) - 51$
 $y = -1$

Feb 11-10:51 AM

$(-1, 2) \text{ ; } (3, 4)$

Diameter
middle - center
radius

Radius

$$r = \sqrt{(3-1)^2 + (4-2)^2}$$

$$r = \sqrt{2^2 + 2^2}$$

$$r = \sqrt{5}$$

$$x = \frac{-1+3}{2} = \frac{2}{2} = 1$$

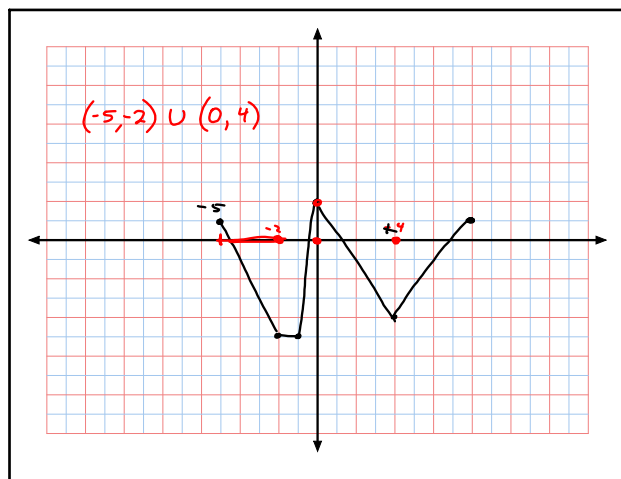
$$y = \frac{2+4}{2} = \frac{6}{2} = 3$$

$(1, 3)$

$$(x+1)^2 + (y+3)^2 = (\sqrt{5})^2$$

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

Feb 11-10:57 AM



Feb 11-11:00 AM

Solve for w

$$4(w+2) \left[\frac{-7}{w+2} = -\frac{3}{\frac{4w+8}{4(w+2)}} + 2 \right]$$

$$4(-7) = -3 + 2 \left(\frac{8}{4} \right) (w+2)$$

$$-28 = -3 + 8w + 16$$

$$-28 = 8w + 13$$

$$-41 = 8w$$

$$w = \frac{-41}{8}$$

Feb 11-11:04 AM

$$\frac{-6}{-6} |v+6| = \frac{-66}{-6}$$

$$|v+6| = 11$$

$$v+6 = 11 \text{ or } v+6 = -11$$

$$v = 5 \text{ or } v = -17$$

$S = \{5, -17\}$

Feb 11-11:07 AM

$3x^2 + 5x + 4 \text{ R } 4$

$$\begin{array}{r} 2x+3 \overline{) 6x^3+19x^2+23x+16} \\ \underline{-(6x^3+9x^2)} \\ 10x^2+23x \\ \underline{-(10x^2+15x)} \\ 8x+16 \\ \underline{-(8x+12)} \\ 4 \end{array}$$

$3 \overline{) 254} \text{ R } 4 \frac{2}{3}$

$$\begin{array}{r} 3 \overline{) 254} \\ \underline{-24} \\ 14 \\ \underline{-12} \\ 2 \end{array}$$

Feb 11-11:10 AM

$(x^4 + 8x^3 + 12x^2 - 2x - 9) \div (x+2)$

$$\begin{array}{r} x^4 \div (x+2) \\ \underline{-2x^4 } \\ 16x^3 \\ \underline{-16x^3 } \\ 32x^2 \\ \underline{-32x^2 } \\ 64x \\ \underline{-64x } \\ 192 \\ \underline{-192} \\ 0 \end{array}$$

$x^3 + 6x^2 - 2 - \frac{5}{x+2}$

Feb 11-11:14 AM

$$f(x) = -x^2 + 2x + 9$$

$$\begin{array}{l} x=2 \quad x=5 \quad \text{Slope} \\ y=f(2) \quad y=f(5) \quad m = \frac{y_1 - y_2}{x_1 - x_2} \end{array}$$

$$-4 + 4 + 9$$

$$(2, 9) \quad (5, 6)$$

Feb 11-11:19 AM