

Warm-Up

1. Factor: $x^2 + 7x + 12$
 $(x+4)(x+3)$

$$\begin{array}{r} 4 \times 3 \\ \hline 12 \\ 7 \end{array}$$

2. Multiply: $(2x - 3)(x + 6)$

$$\begin{array}{r} 2x \quad -3 \\ \times \quad 2x^2 - 3x \\ \hline 12x - 18 \\ \hline 4x^2 - 3x \end{array}$$

$$2x^2 + 9x - 18$$

3. Convert to set notation: D: $-7 \leq x < \infty$ R: $-7 \leq y \leq 7$
 D: $[-7, \infty)$ R: $[-7, 7]$

4. Identify the Parent Function: $-|x - 2| + 5$
 Abs. Value

5. Identify the transformation of the p.f. above.
 reflect across x -axis
 Horizontal translation right 2
 vertical translation up 5

SAT Question of the day

Aaron is staying at a hotel that charges \$99.95 per night plus tax for a room. A tax of 8% is applied to the room rate, and an additional onetime untaxed fee of \$5.00 is charged by the hotel. Which of the following represents Aaron's total charge, in dollars, for staying x nights?

- A $(99.5 + 0.08x) + 5$ $1.08(99.95) + 5.00$
- B $1.08(99.95x) + 5$
- C $1.08(99.95x + 5)$
- D $1.08(99.95 + 5)x$

Review:

$$f(x) = a(x-h)^2 + k$$

1. What does the value of a do to the graph?
 reflect across the x -axis - neg, vertical stretch $a > 1$
 vertical compression $0 < a < 1$

2. What does the value of k do to the graph?
 vertical translation
 up () + down () -

3. What does the value of h do to the graph?
 Horizontal translation
 left (+) right (-)

4. identify the parent function of $|x-3| + 2$
 Abs. value

5. Identify the transformation of the parent function
 Horizontal translation right 3,
 Vertical translation up 2

6. Identify the parent function of $-(x+3)^2 - 3$

Quadratic
 7. Identify the transformation of the parent function in question 6
 reflects across the x -axis, horizontal translation left 3
 vertical translation down 3

8. What is the transformation of $\frac{1}{2}x^3 - 3$
 vertical compression by $\frac{1}{2}$
 vertical down 3

10. Identify the transformation of $\frac{2}{3}(x+5)^2 - 10$
 vertical compression by $\frac{2}{3}$, horizontal translation left 5
 vertical translation down 10

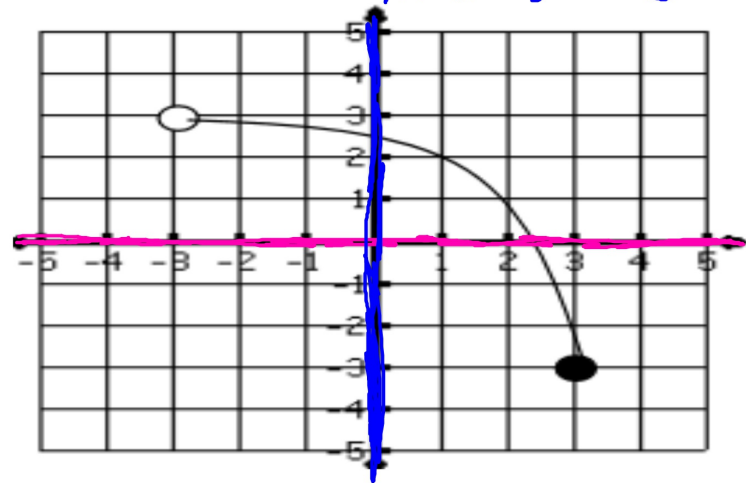
Domain and Range

Review

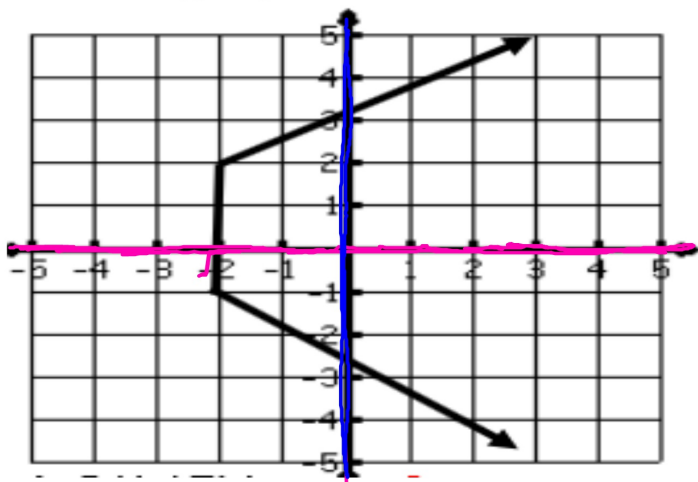
Domain: left $< x <$ Right Range: low $< y <$ high

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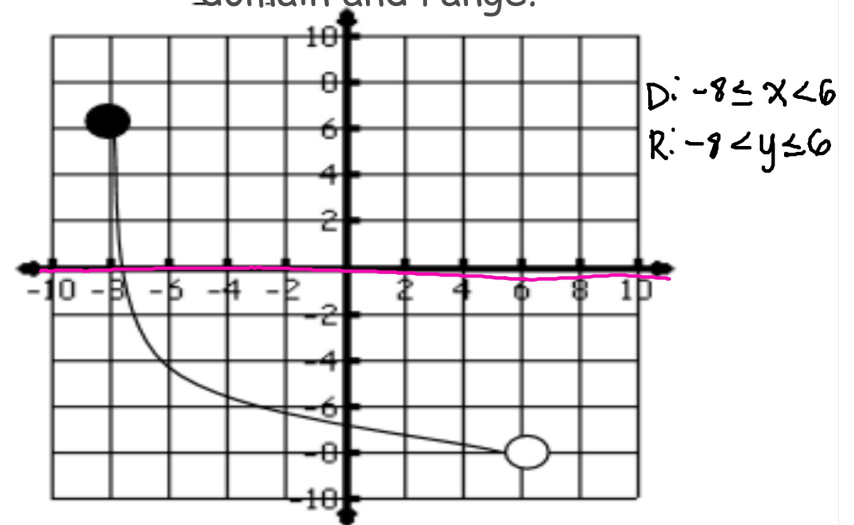
Using inequality notation, what is the domain and range?
 $D: -3 < x \leq 3$
 $R: -3 \leq y < 3$

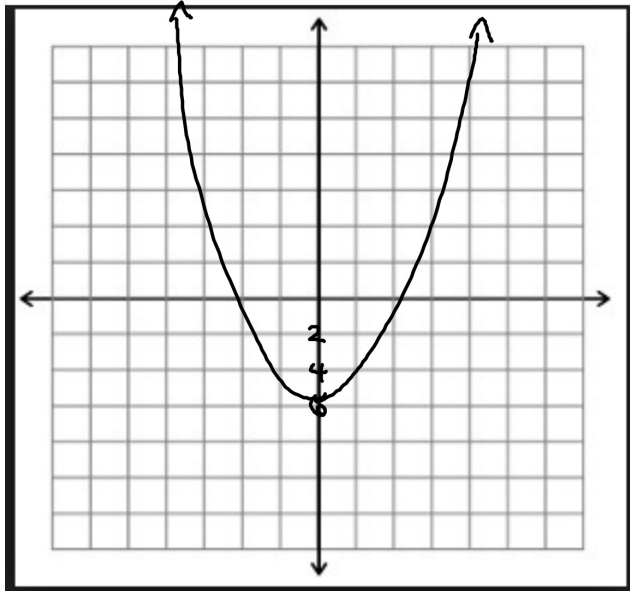


Using inequality notation, what is the domain and range?
 $D: -2 \leq x < \infty$
 $R: -\infty < y < \infty$



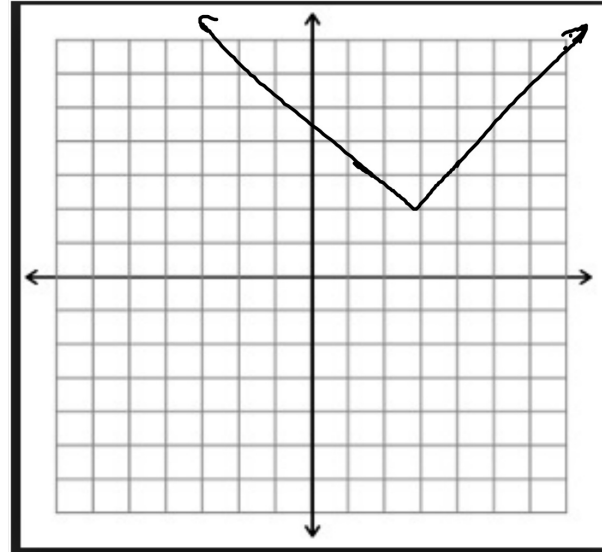
Using inequality notation, what is the domain and range?





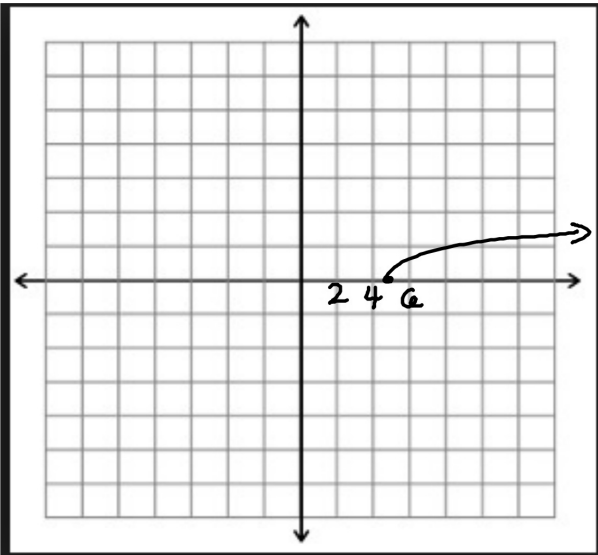
$D: (-\infty, \infty)$
 $R: [-6, \infty)$
 $D: (-\infty, \infty)$
 $R: (-\infty, 5]$

$$f(x) = |x - 3| + 2$$



$D: (-\infty, \infty)$
 $R: [2, \infty)$
 $D: (-\infty, \infty)$
 $R: [-3, \infty)$

$$f(x) = \sqrt{x - 5}$$



$D: [5, \infty)$
 $R: [0, \infty)$

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