Topic 5 Quest Climb the Ladder
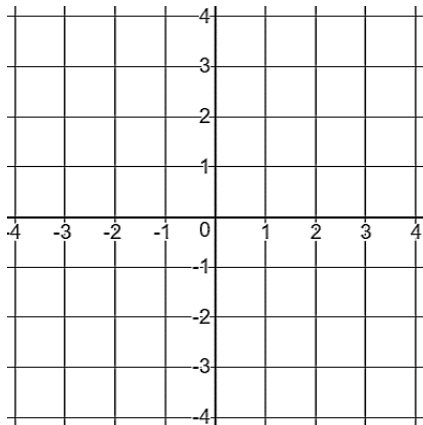
1. Graph each and state the vertex, axis of symmetry, domain, and range

a. $f(x) = -\frac{1}{3}|x+1|+2$
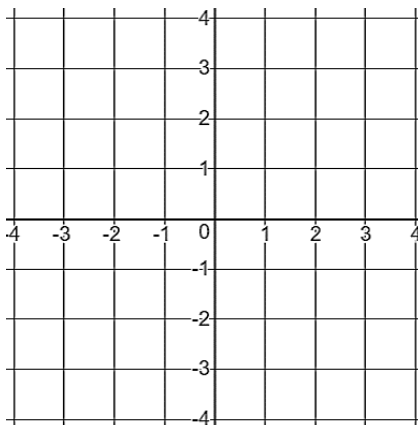
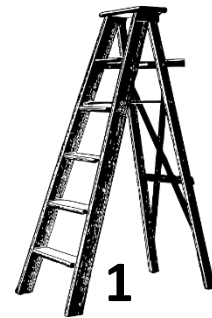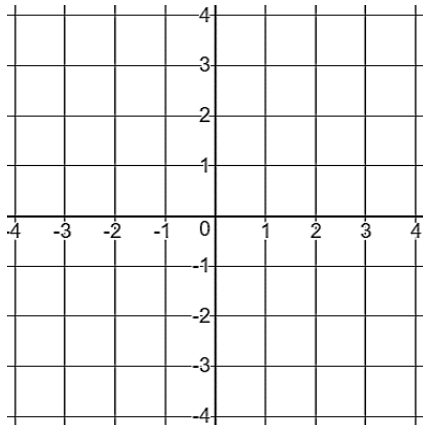b. $f(x) = 2|x-1|-3$
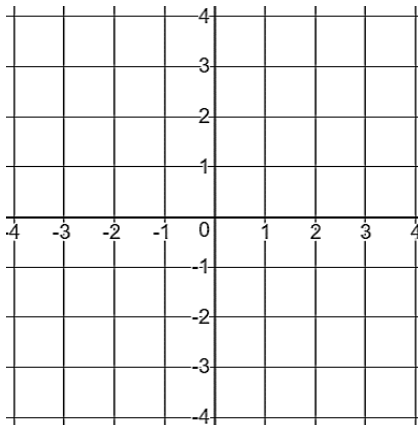
Vertex:

Axis of Symmetry:

Domain:

Range:

Vertex:

Axis of Symmetry:

Domain:

Range:

Climb the Ladder

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1. Solve each absolute value equation for *x*.

a. $3|-8x|+8=80$

b. $3|3-5x|-3=18$
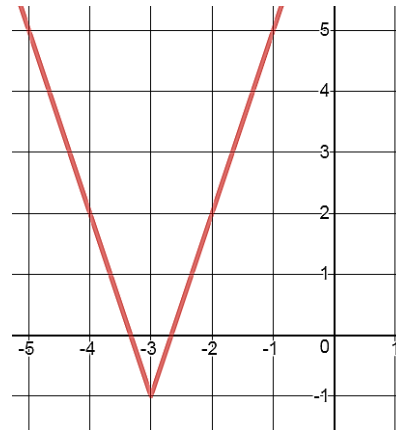
c. $6|1-5x|-9=57$

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1. Use the graph of $g(x)$ to answer the following questions

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a. Write the equation

b. Over what interval is $g(x)$ increasing?

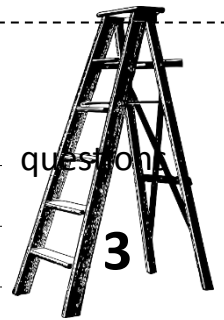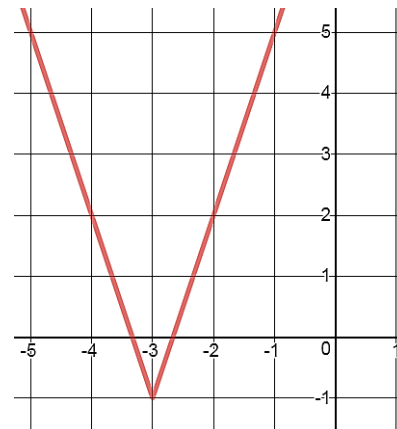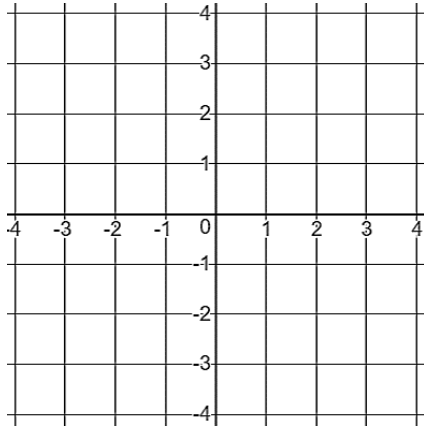c. What is the average rate of change over the interval $[-4, -1]$.
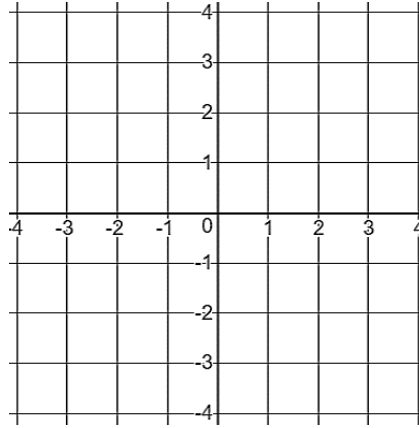

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Graph each piecewise defined function

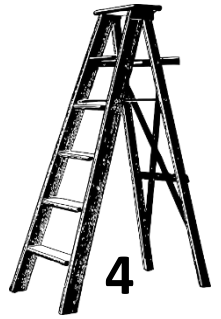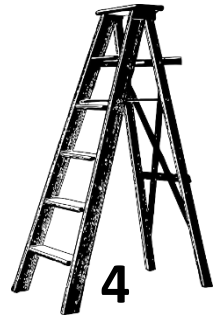1. $f(x) = \begin{cases} 2, x \leq -2 \\ 2x-2, x > 1 \end{cases}$

2. $g(x) = \begin{cases} x-1, x < 2 \\ \dfrac{1}{2}x+1, x \geq 2 \end{cases}$

4
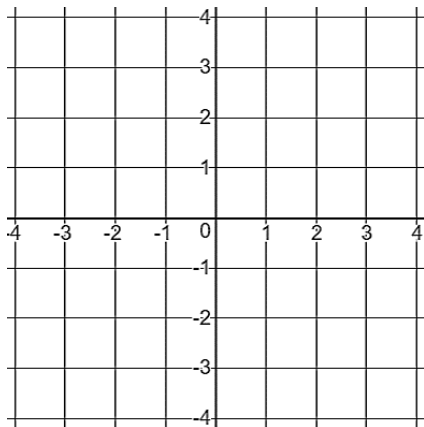
a. Where is $f(x)$ increasing?
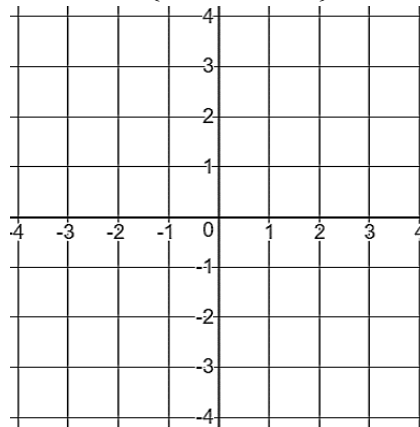
a. Average rate of change over $x \in [0,2]$

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1. The Mad Hatter is ordering cups from Teacups Limited, for his tea party. The Teacups Limited catalog prices cups according to the number of cups ordered. For orders of 20 or fewer cups, the price is $1.40 per cup plus $12 for shipping. For orders more than 20 cups, the price is $1.10 per cup plus $15 for shipping.

a. Write a piecewise function to describe the price of x cups.
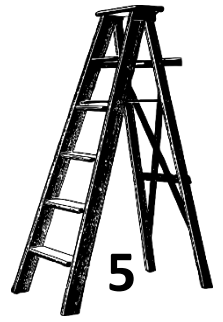
b. How much will the Mad Hatter pay if he orders 45 cups?

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1. The Mad Hatter is ordering cups from Teacups Limited, for his tea party. The Teacups Limited catalog prices cups according to the number of cups ordered. For orders of 20 or fewer cups, the price is $1.40 per cup plus $12 for shipping. For orders more than 20 cups, the price is $1.10 per cup plus $15 for shipping.

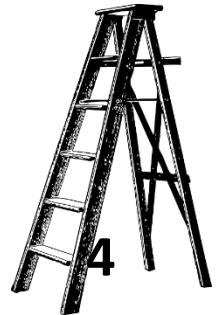a. Write a piecewise function to describe the price of *x* cups.

b. How much will the Mad Hatter pay if he orders 45 cups?