

Assignment

Date _____ Period _____

For each problem, find the average rate of change of the function over the given interval.

1) $f(x) = x^2 - 1; [2, \frac{9}{4}]$

2) $f(x) = x^2 + x + 1; [-3, 0]$

3) $f(x) = 2x^2 + 2x - 2; [-1, 1]$

4) $f(x) = 2x^2 + 2x + 2; [0, 1]$

5) $f(x) = -2x^2 + 1; [-1, -\frac{2}{3}]$

6) $f(x) = 2x^2 + x + 1; [1, \frac{3}{2}]$

7) $f(x) = 2x^2 + x + 1; [-1, -\frac{3}{4}]$

8) $f(x) = -x^2 + 2x + 1; [-2, -\frac{7}{4}]$

9) $f(x) = x^2 - 2x + 1; [1, 2]$

10) $f(x) = -2x^2 + 2x + 2; [0, 2]$

11) $f(x) = 2x^2 + 1; [0, \frac{1}{2}]$

12) $f(x) = 2x^2 + 2x - 1; [0, \frac{1}{4}]$

$$13) f(x) = x^2 - 2x - 2; [0, 2]$$

$$14) f(x) = x^2 + 2x + 2; [-2, 1]$$

$$15) f(x) = x^2 + 2x + 2; [-3, -\frac{5}{2}]$$

$$16) f(x) = 2x^2 + 1; [-1, -\frac{3}{4}]$$

$$17) f(x) = -2x^2 + x - 1; [0, \frac{1}{4}]$$

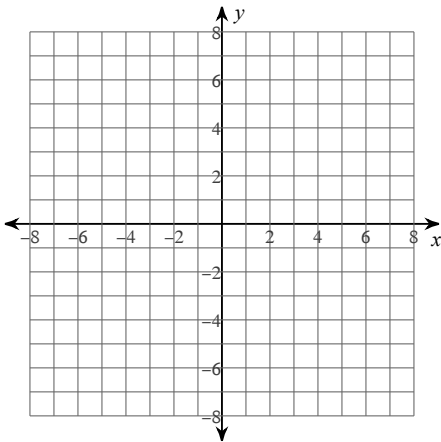
$$18) f(x) = 2x^2 + 2; [0, 1]$$

$$19) f(x) = -x^2 + x + 2; [3, \frac{7}{2}]$$

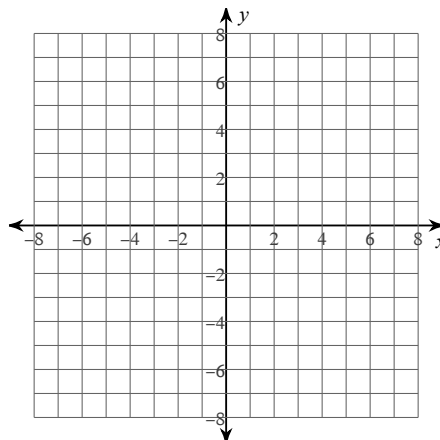
$$20) f(x) = 2x^2 + 2x - 1; [-1, 1]$$

Sketch the graph of each function.

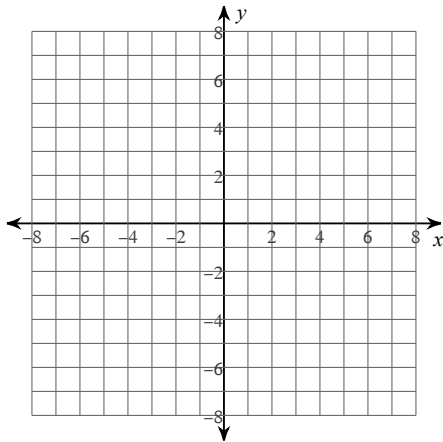
$$21) w(x) = \begin{cases} 3^x + 4, & x \leq -4 \\ -|x|, & x > -4 \end{cases}$$



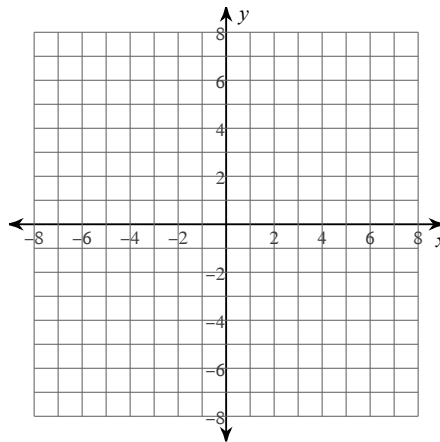
$$22) w(x) = \begin{cases} (x+3)^2, & x < -3 \\ \frac{3}{x}, & x \geq -3 \end{cases}$$



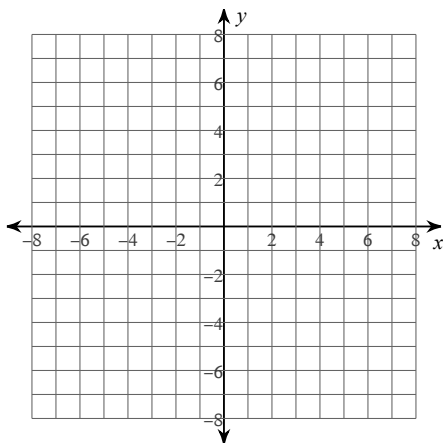
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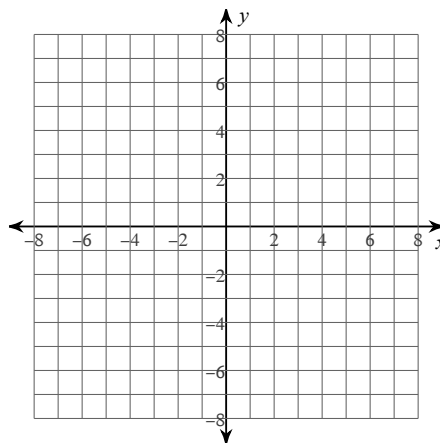
$$24) f(x) = \begin{cases} 2, & x < -3 \\ (x+3)^2, & x \geq -3 \end{cases}$$



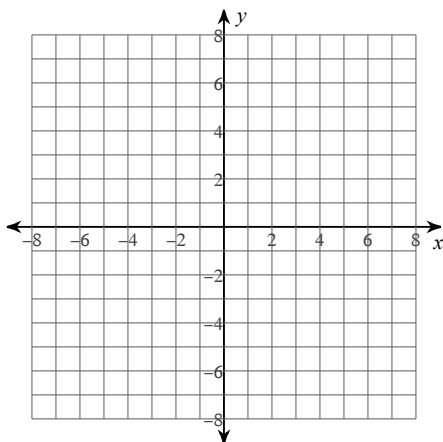
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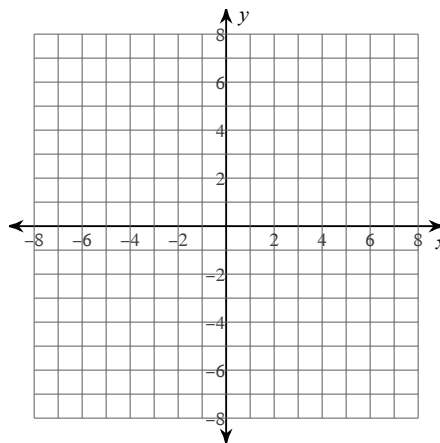
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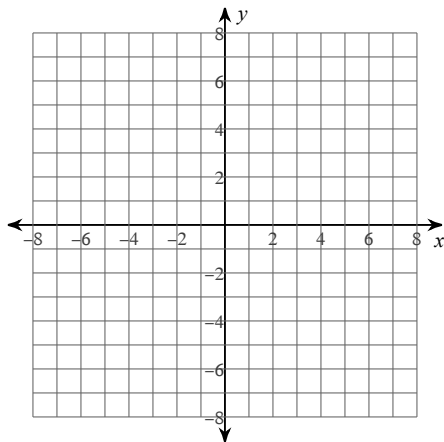
$$27) f(x) = \begin{cases} 4^x + 4, & x \leq -3 \\ \frac{1}{x+4}, & x > -3 \end{cases}$$



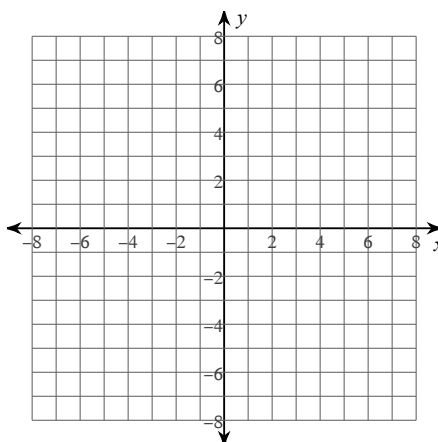
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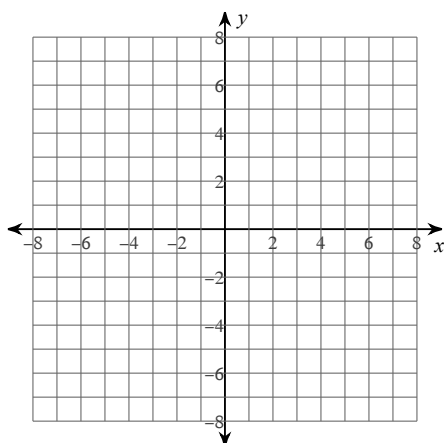
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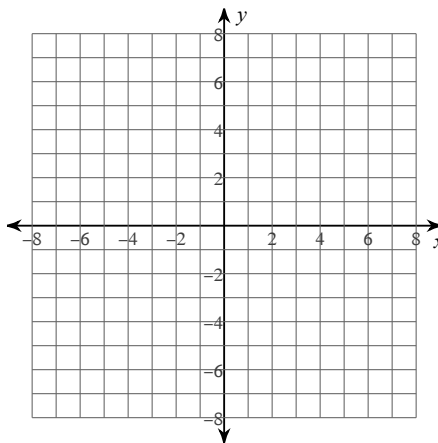
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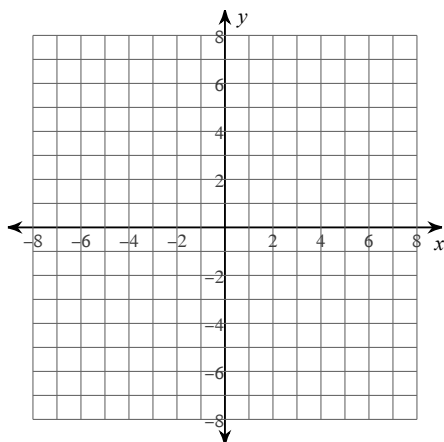
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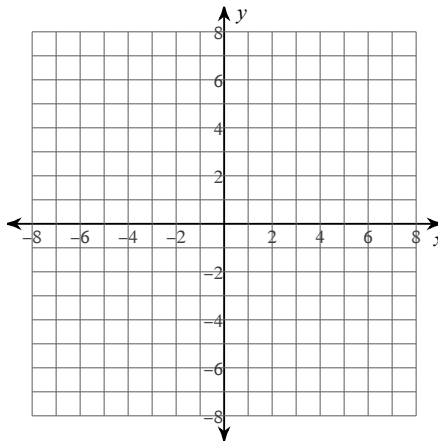
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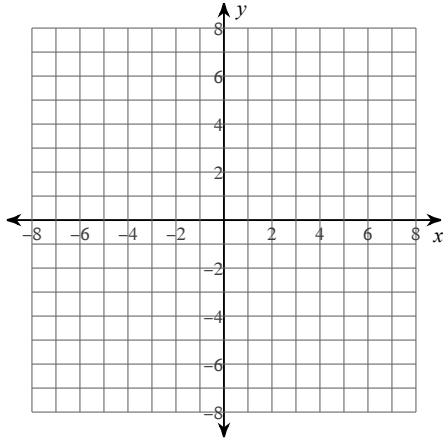
$$33) f(x) = \begin{cases} |x + 1|, & x < 4 \\ \frac{1}{x - 4}, & x \geq 4 \end{cases}$$



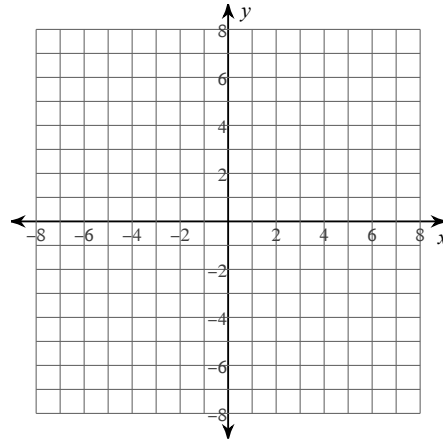
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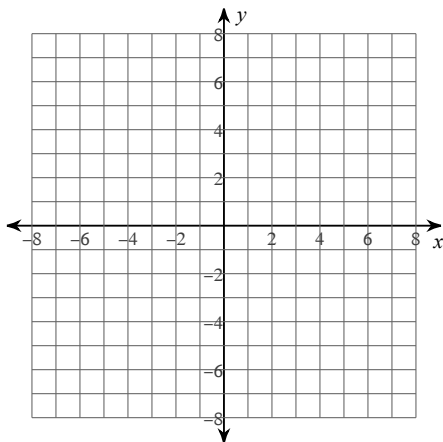
$$35) g(x) = \begin{cases} (x-2)^3, & x \leq 3 \\ -4 + \sqrt{x}, & x > 3 \end{cases}$$



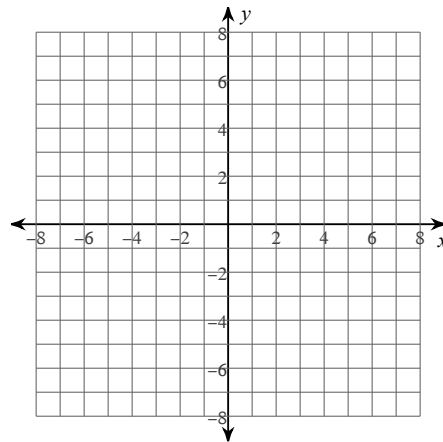
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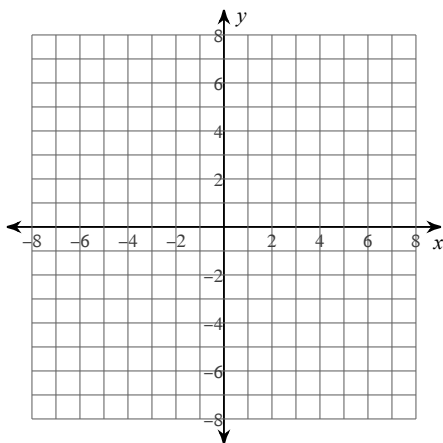
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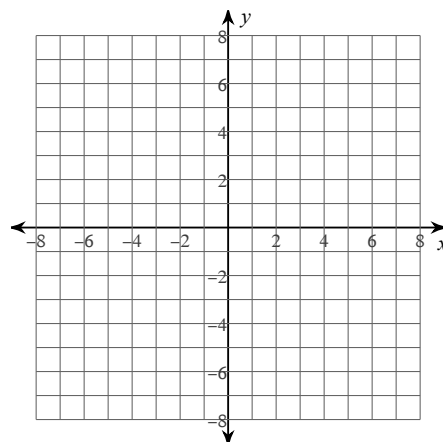
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$$40) g(x) = \begin{cases} \frac{1}{x} - 4, & x \leq 3 \\ \frac{1}{x} - 2, & x > 3 \end{cases}$$



$$41) g(x) = (x - 2)^2 - 1$$

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$$50) g(x) = \frac{1}{x - 1} - 2$$

$$51) g(x) = (x - 3)^3 - 3$$

$$52) g(x) = \sqrt{x - 3} - 1$$

$$53) g(x) = \frac{1}{x + 2} - 2$$

$$54) g(x) = \frac{1}{x + 1} + 2$$

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$$56) g(x) = \frac{1}{x + 1} - 2$$

$$57) g(x) = |x + 3| + 3$$

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$$62) g(x) = |x - 1| + 1$$

$$63) g(x) = \frac{1}{x - 3} - 3$$

$$64) g(x) = (x - 2)^3 - 2$$

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$$66) g(x) = |x + 3| - 3$$

$$67) g(x) = \sqrt{x - 1} + 2$$

$$68) g(x) = \sqrt{x + 3} - 2$$

$$69) g(x) = \sqrt{x - 1} + 1$$

$$70) g(x) = (x - 3)^2 + 2$$

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$$72) g(x) = \sqrt{x + 1} - 2$$

$$73) g(x) = \sqrt{x-1} - 1$$

$$74) g(x) = \sqrt{x+2} + 1$$

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$$76) g(x) = \frac{1}{x-3} + 1$$

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1) $f(x) = x^2 - 1; [2, \frac{9}{4}]$

$$\frac{17}{4}$$

2) $f(x) = x^2 + x + 1; [-3, 0]$

$$-2$$

3) $f(x) = 2x^2 + 2x - 2; [-1, 1]$

$$2$$

4) $f(x) = 2x^2 + 2x + 2; [0, 1]$

$$4$$

5) $f(x) = -2x^2 + 1; [-1, -\frac{2}{3}]$

$$\frac{10}{3}$$

6) $f(x) = 2x^2 + x + 1; [1, \frac{3}{2}]$

$$6$$

7) $f(x) = 2x^2 + x + 1; [-1, -\frac{3}{4}]$

$$-\frac{5}{2}$$

8) $f(x) = -x^2 + 2x + 1; [-2, -\frac{7}{4}]$

$$\frac{23}{4}$$

9) $f(x) = x^2 - 2x + 1; [1, 2]$

$$1$$

10) $f(x) = -2x^2 + 2x + 2; [0, 2]$

$$-2$$

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$$1$$

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0

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1

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$-\frac{7}{2}$

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$\frac{1}{2}$

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2

19) $f(x) = -x^2 + x + 2$; $[3, \frac{7}{2}]$

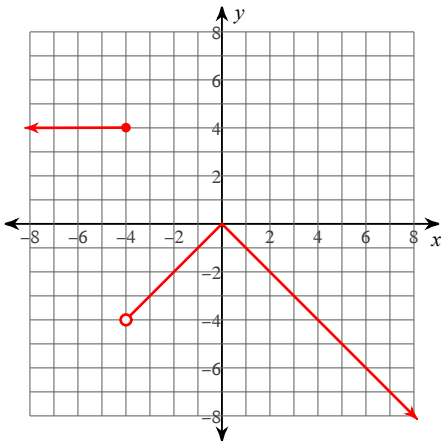
$-\frac{11}{2}$

20) $f(x) = 2x^2 + 2x - 1$; $[-1, 1]$

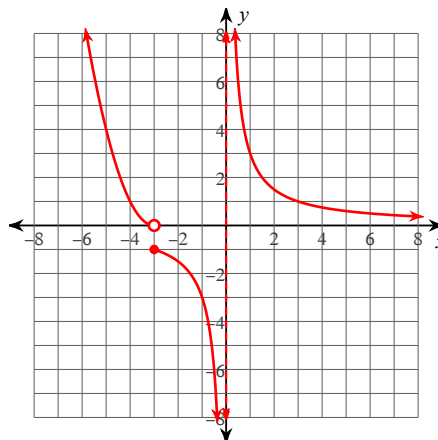
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Sketch the graph of each function.

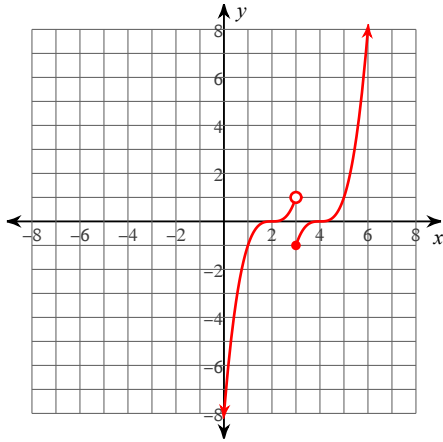
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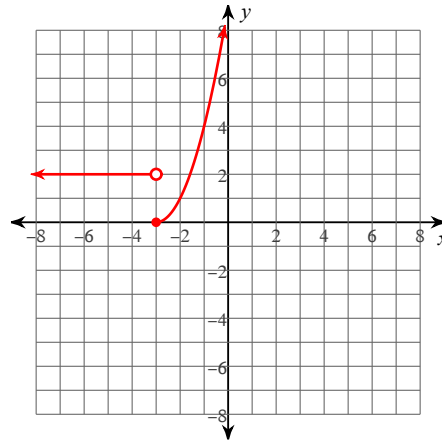
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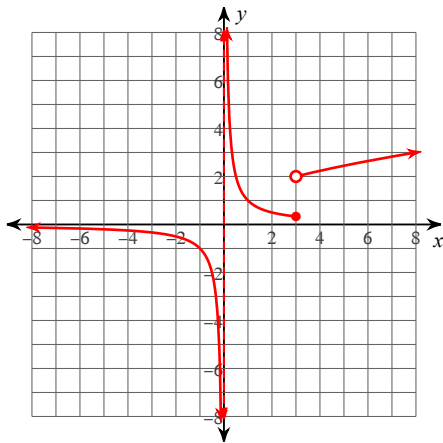
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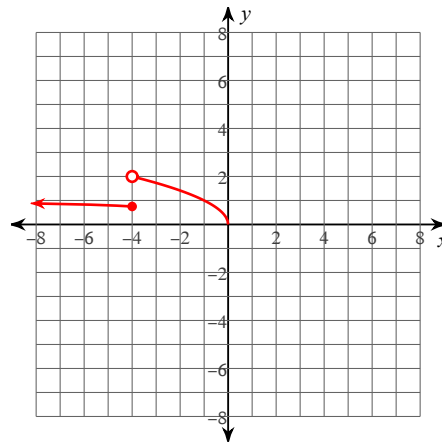
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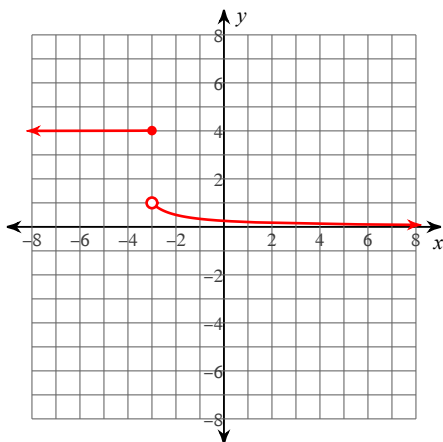
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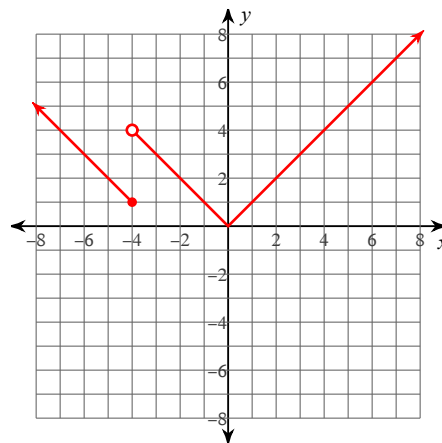
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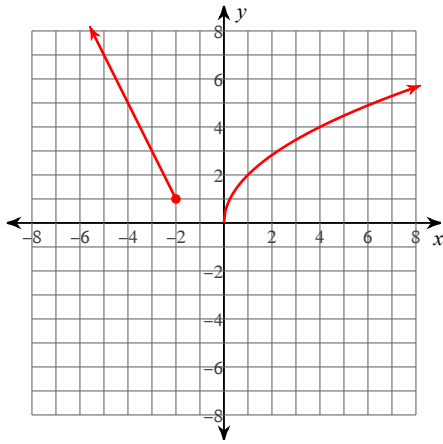
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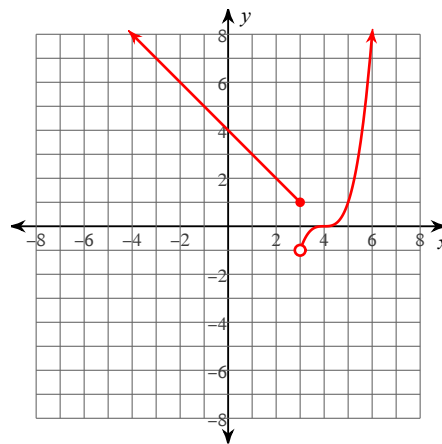
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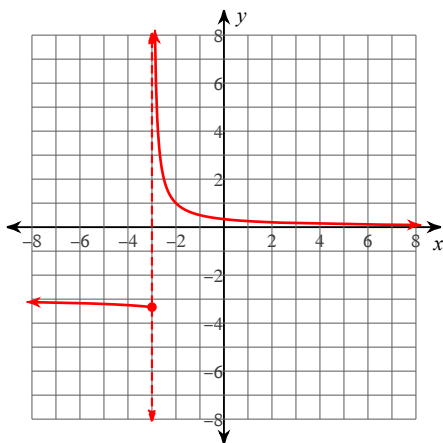
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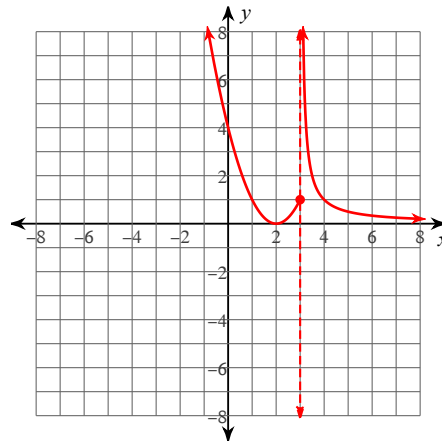
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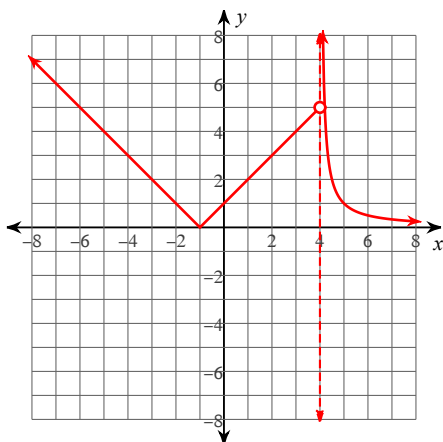
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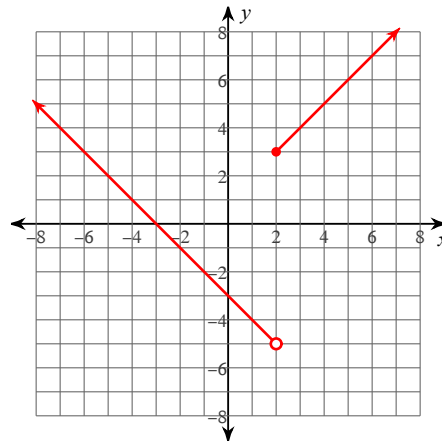
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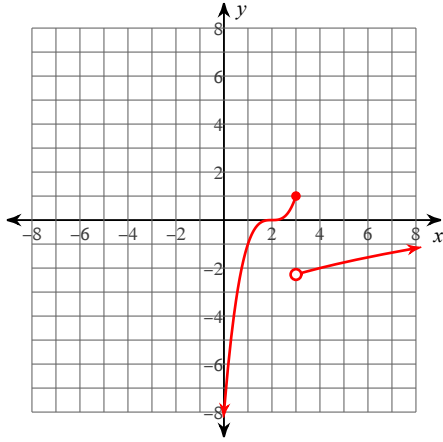
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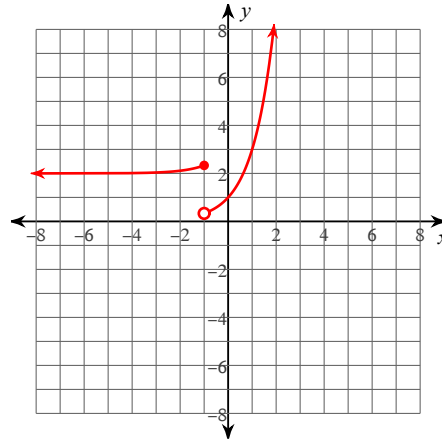
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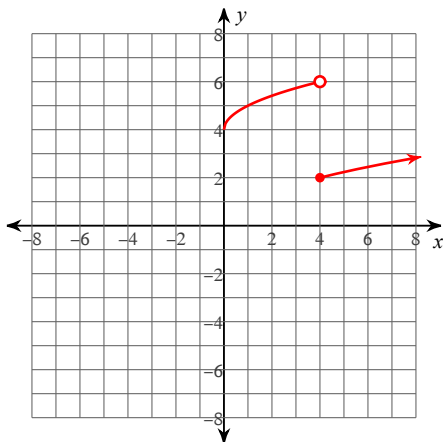
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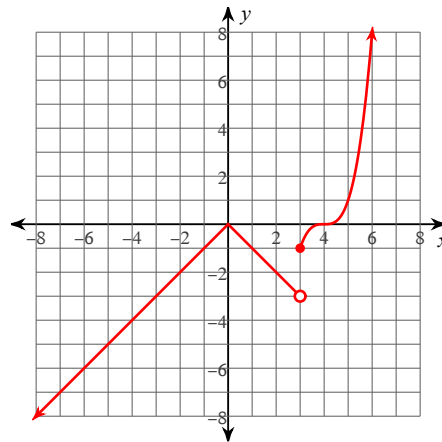
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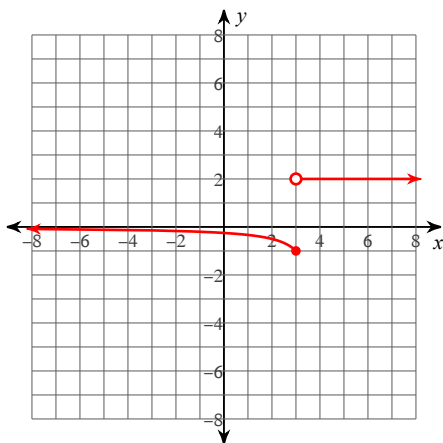
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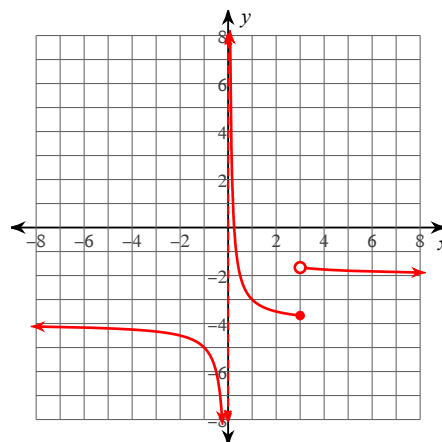
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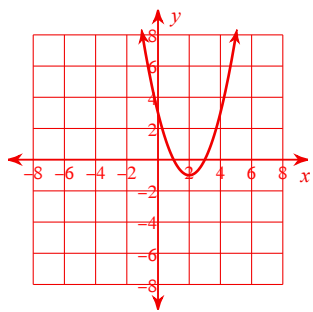
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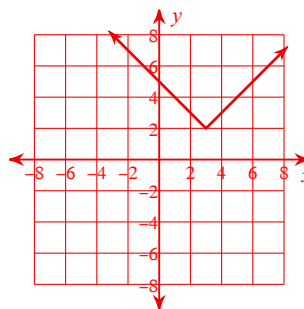
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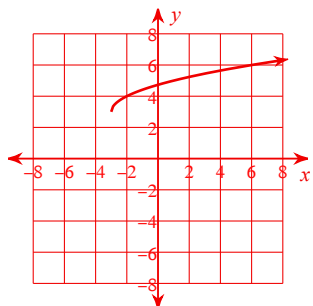
$$41) g(x) = (x - 2)^2 - 1$$



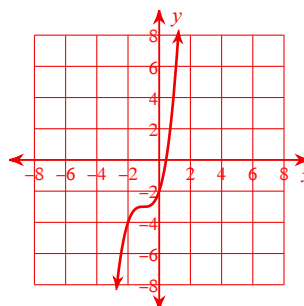
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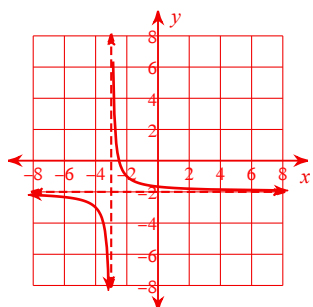
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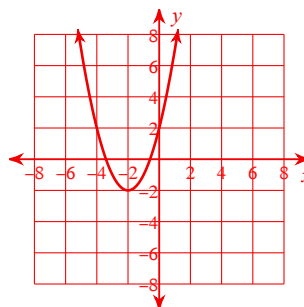
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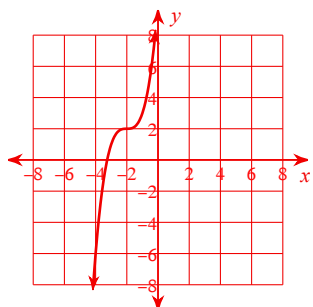
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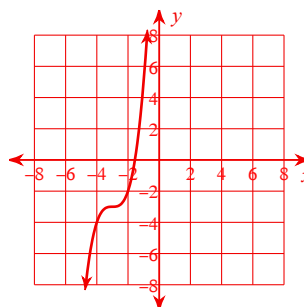
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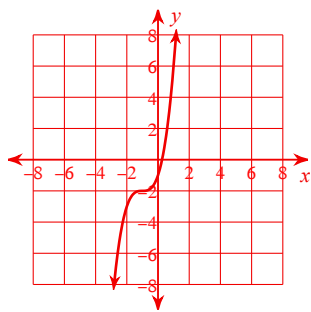
$$47) g(x) = (x + 2)^3 + 2$$



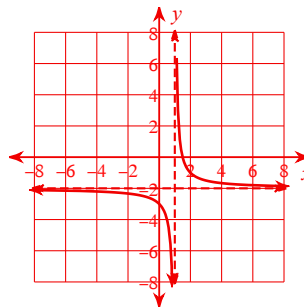
$$48) g(x) = (x + 3)^3 - 3$$



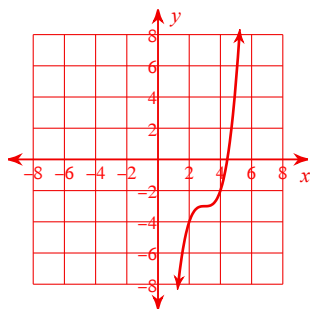
$$49) g(x) = (x + 1)^3 - 2$$



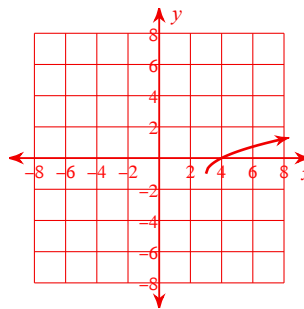
$$50) g(x) = \frac{1}{x - 1} - 2$$



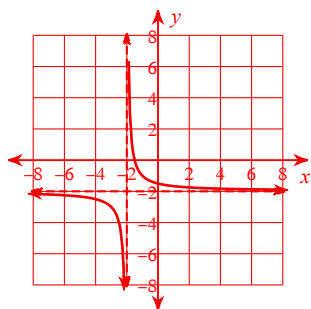
$$51) g(x) = (x - 3)^3 - 3$$



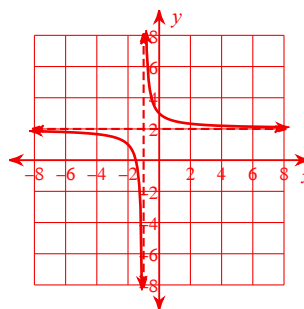
$$52) g(x) = \sqrt{x - 3} - 1$$



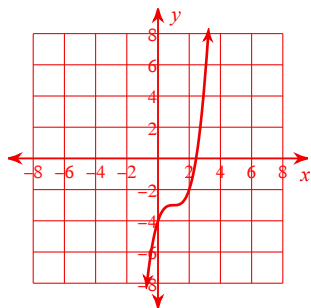
$$53) g(x) = \frac{1}{x + 2} - 2$$



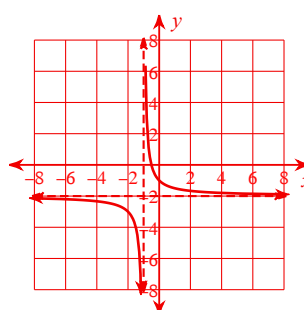
$$54) g(x) = \frac{1}{x + 1} + 2$$



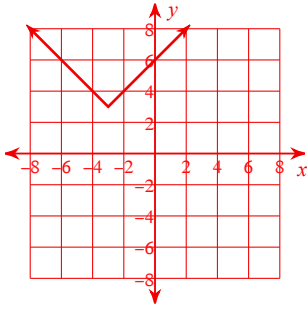
$$55) g(x) = (x - 1)^3 - 3$$



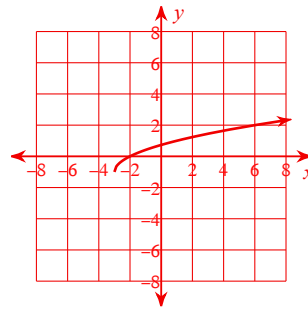
$$56) g(x) = \frac{1}{x + 1} - 2$$



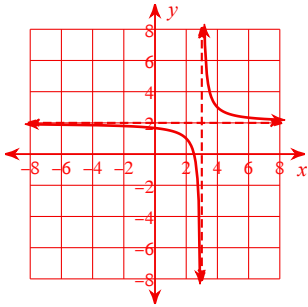
$$57) g(x) = |x + 3| + 3$$



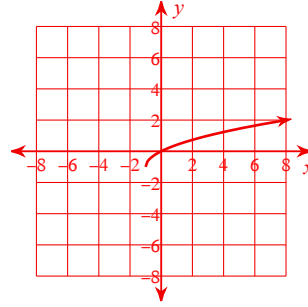
$$58) g(x) = \sqrt{x + 3} - 1$$



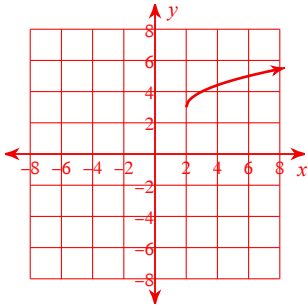
$$59) g(x) = \frac{1}{x - 3} + 2$$



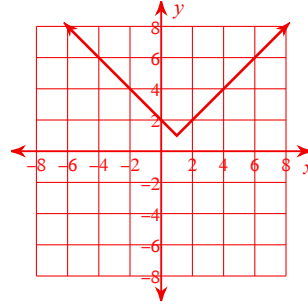
$$60) g(x) = \sqrt{x + 1} - 1$$



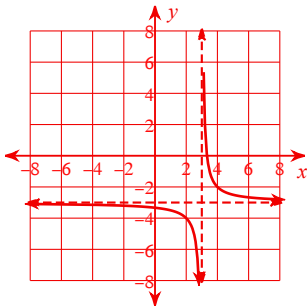
$$61) g(x) = \sqrt{x - 2} + 3$$



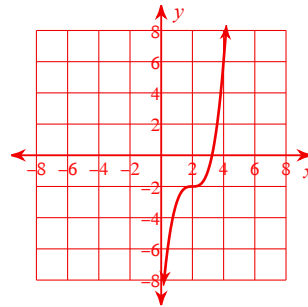
$$62) g(x) = |x - 1| + 1$$



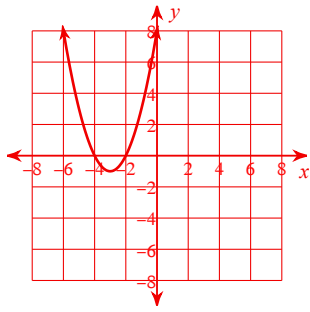
$$63) g(x) = \frac{1}{x - 3} - 3$$



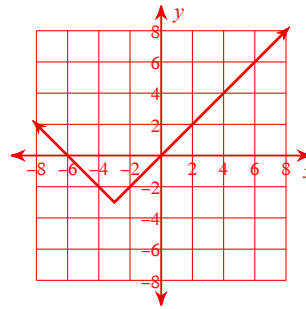
$$64) g(x) = (x - 2)^3 - 2$$



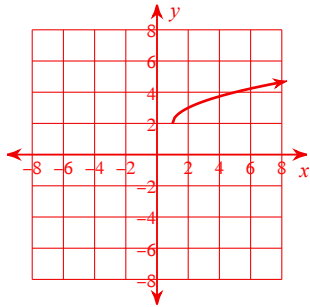
$$65) g(x) = (x + 3)^2 - 1$$



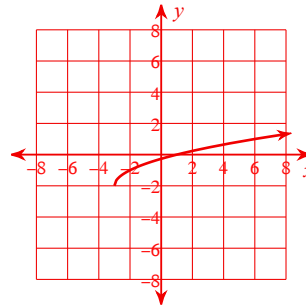
$$66) g(x) = |x + 3| - 3$$



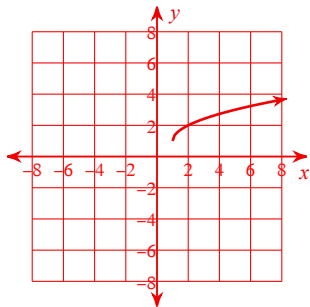
$$67) g(x) = \sqrt{x - 1} + 2$$



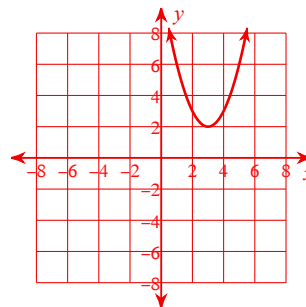
$$68) g(x) = \sqrt{x + 3} - 2$$



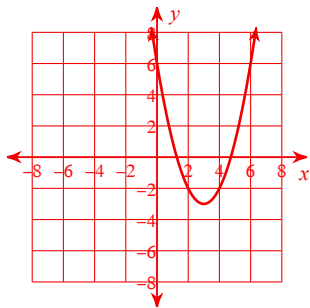
$$69) g(x) = \sqrt{x - 1} + 1$$



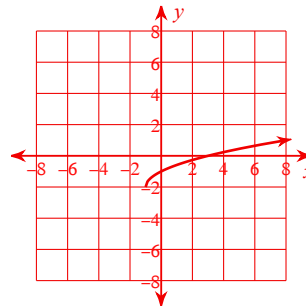
$$70) g(x) = (x - 3)^2 + 2$$



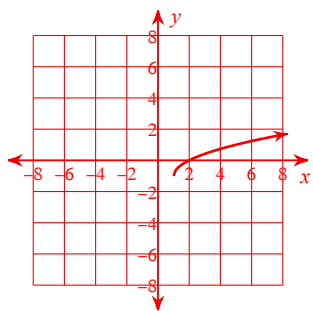
$$71) g(x) = (x - 3)^2 - 3$$



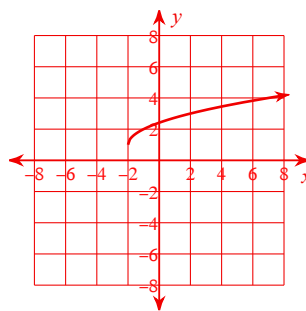
$$72) g(x) = \sqrt{x + 1} - 2$$



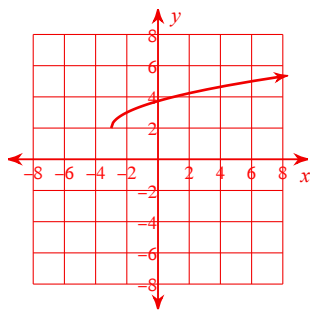
$$73) g(x) = \sqrt{x-1} - 1$$



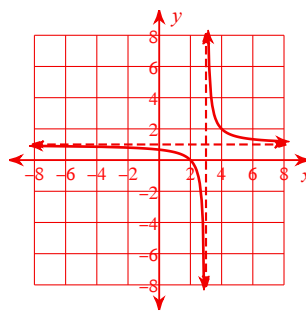
$$74) g(x) = \sqrt{x+2} + 1$$



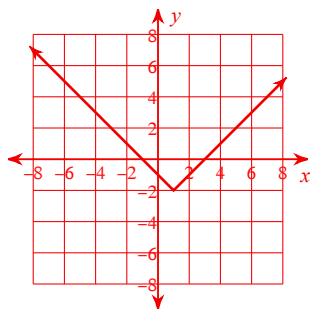
$$75) g(x) = \sqrt{x+3} + 2$$



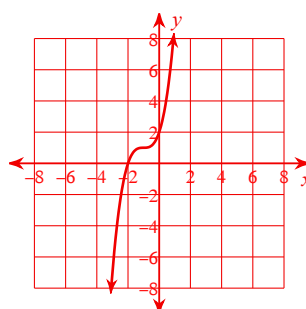
$$76) g(x) = \frac{1}{x-3} + 1$$



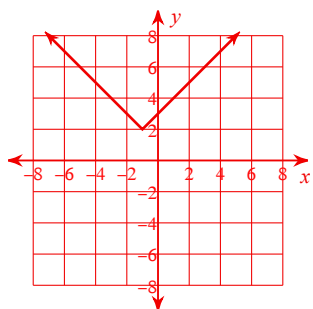
$$77) g(x) = |x-1| - 2$$



$$78) g(x) = (x+1)^3 + 1$$



$$79) g(x) = |x+1| + 2$$



$$80) g(x) = (x-2)^2 + 3$$

