

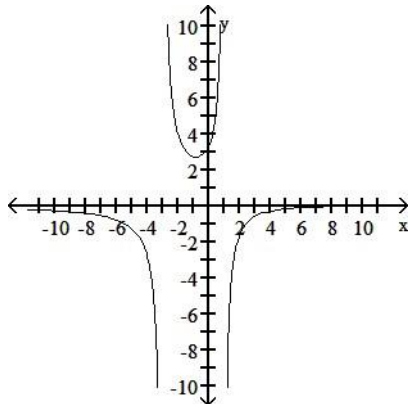
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HW #41 Examples - Asymptotes, Polynomial and Rational Inequalities

Use the graph of the rational function shown to complete the statement.

1.



As  $x \rightarrow -3^+$ ,  $f(x) \rightarrow ?$

A)  $-\infty$

B) -3

C) 0

D)  $+\infty$

Find the slant asymptote, if any, of the graph of the rational function.

2.  $f(x) = \frac{x^2 - 9x + 8}{x + 8}$

A.  $y = x - 17$

B.  $y = x + 9$

C.  $y = x + 17$

D. No slant asymptote

Find the horizontal, if any, of the graph of the rational function.

3.  $f(x) = \frac{-2x - 1}{5x + 5}$

A.  $y = -2$

B.  $y = -\frac{1}{5}$

C.  $y = -\frac{2}{5}$

D. No horizontal asymptote

Find the vertical asymptote, if any, of the graph of the rational function.

4.  $f(x) = \frac{x - 25}{x^2 - 8x + 12}$

A.  $x = -2, x = -6$

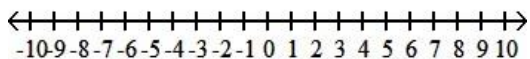
B.  $x = -25$

C.  $x = 2, x = 6$

D.  $x = 2, x = 6, x = -25$

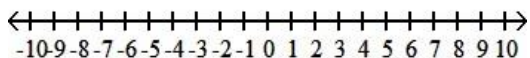
Solve the polynomial inequality and graph the solution set on a number line.

5.  $3x^2 + 11x - 4 \leq 0$



Solve the rational inequality and graph the solution set on a number line.

6.  $\frac{4x + 7}{14 - 7x} \geq 0$



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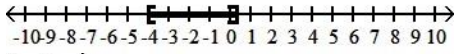
1) D

2) A

3) C

4) B

5)  $\left[-4, \frac{1}{3}\right]$



6)  $\left[-\frac{7}{4}, 2\right)$

