Int. Trig Sp. 2012 Name_____

In-Class Test Review

Date_____ Period____

Simplify each expression.

1) $\frac{5}{6} + \frac{2}{x^2 + 2x - 15}$

2) $4 + \frac{3p}{5p^3 + 15p^2 - 20p}$

3) $\frac{6k - 2}{2k + 6} - \frac{3}{5k - 1}$

4) $\frac{5n}{n^2 + 4n + 4} + \frac{2n}{3}$

Simplify each and state the excluded values.

5) $\frac{42r^2 - 18r}{63r^2 - 27r} \cdot \frac{6r + 60}{r + 10}$

6) $\frac{3m^2 + 27m}{10m^2 + 50m} \div \frac{3m^2 + 27m}{14m + 70}$

7) $\frac{n + 8}{3n - 18} \div \frac{n^2 + 16n + 64}{n^2 + n - 56}$

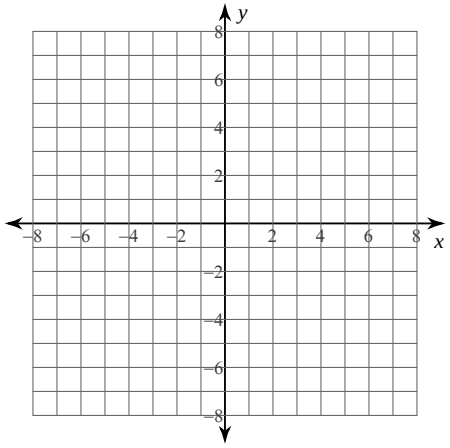
8) $\frac{8b^2 + 32b}{b^2 - 5b - 6} \div \frac{b + 4}{9b + 9}$

9) $\frac{49v^3 - 28v^2}{28v - 16} \div \frac{6v^2 - 2v}{2v - 6v^2}$

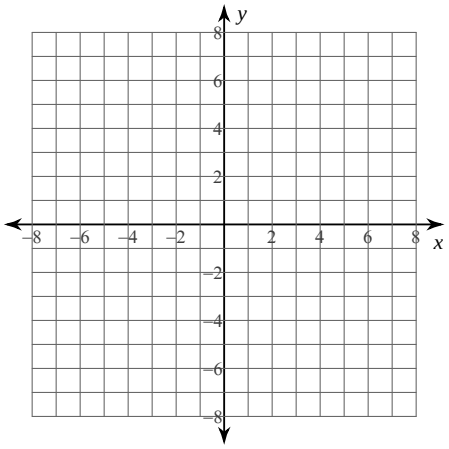
10) $\frac{3x - 24}{90} \cdot \frac{x - 10}{x^2 - 18x + 80}$

Identify the holes, vertical asymptotes, horizontal asymptote, and domain of each. Then sketch the graph.

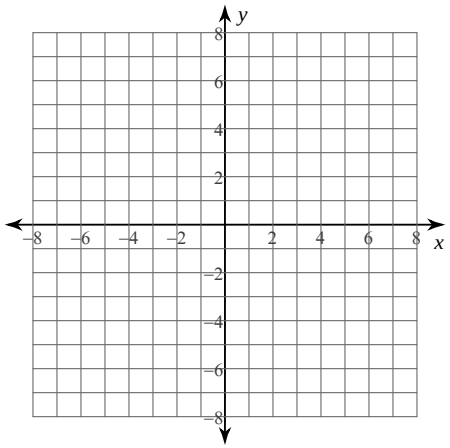
11) $f(x) = \frac{x^2 - x - 12}{-4x + 12}$



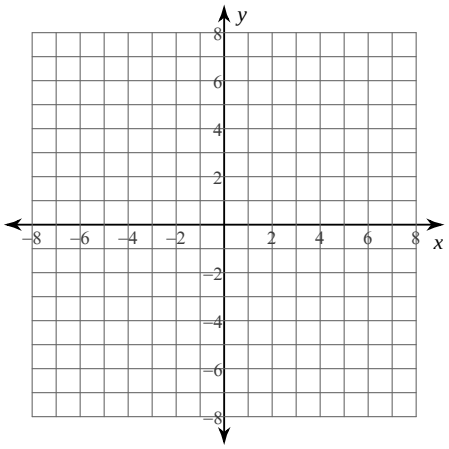
12) $f(x) = \frac{x^3 - 4x^2 + 3x}{3x^2 - 3x - 18}$



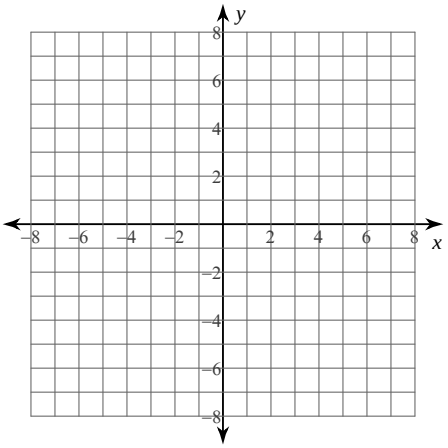
13) $f(x) = \frac{x^3 - x^2 - 12x}{-2x^2 + 8}$



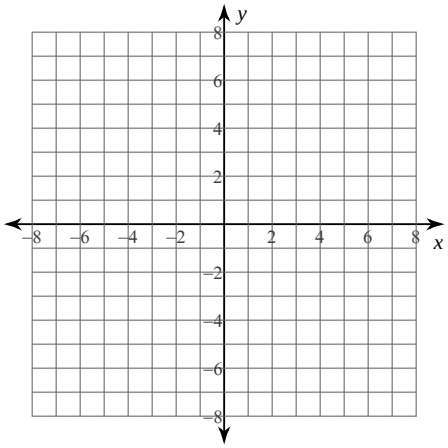
14) $f(x) = \frac{x^3 - 6x^2 + 8x}{-4x^2 + 12x}$



15) $f(x) = \dfrac{x^3 + x^2 - 6x}{-3x^2 + 27}$

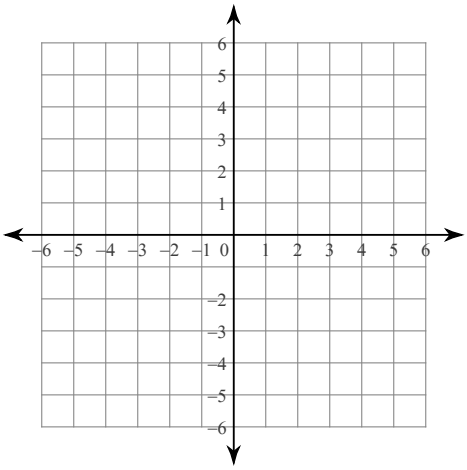


16) $f(x) = \dfrac{x^3 + 2x^2 - 3x}{-4x^2 - 4x + 8}$

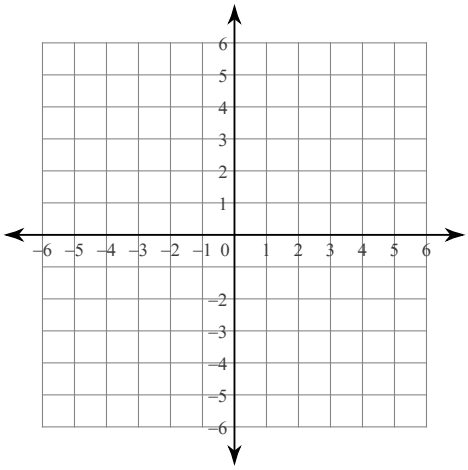


Sketch the graph of each linear inequality.

17) $x - y < 0$

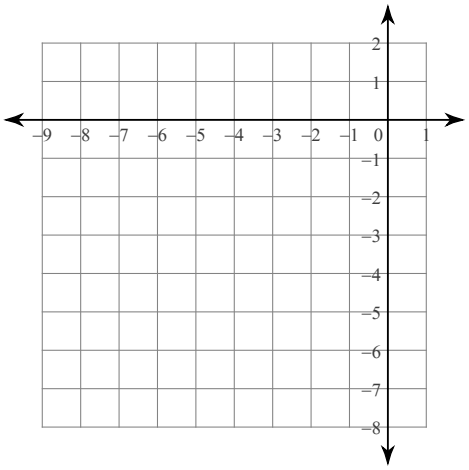


18) $3x - 2y > -4$

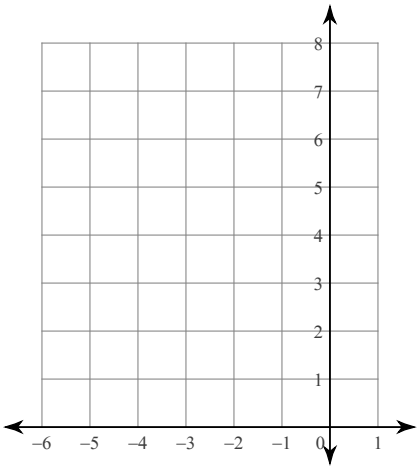


Sketch the graph of each function.

19) $y \le -2x^2 - 8x - 7$



20) $y < x^2 + 8x + 19$



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Simplify each expression.

1) $\frac{5}{6} + \frac{2}{x^2 + 2x - 15}$ $\frac{5x^2 + 10x - 63}{6(x+5)(x-3)}$

2) $4 + \frac{3p}{5p^3 + 15p^2 - 20p}$ $\frac{20p^2 + 60p - 77}{5(p+4)(p-1)}$

3) $\frac{6k-2}{2k+6} - \frac{3}{5k-1}$ $\frac{15k^2 - 11k - 8}{(5k-1)(k+3)}$

4) $\frac{5n}{n^2 + 4n + 4} + \frac{2n}{3}$ $\frac{23n + 2n^3 + 8n^2}{3(n+2)^2}$

Simplify each and state the excluded values.

5) $\frac{42r^2 - 18r}{63r^2 - 27r} \cdot \frac{6r + 60}{r + 10}$ $4; \left\{0, \frac{3}{7}, -10\right\}$

6) $\frac{3m^2 + 27m}{10m^2 + 50m} \div \frac{3m^2 + 27m}{14m + 70}$ $\frac{7}{5m}; \{0, -5, -9\}$

7) $\frac{n+8}{3n-18} \div \frac{n^2 + 16n + 64}{n^2 + n - 56}$ $\frac{n-7}{3(n-6)}; \{6, -8, 7\}$

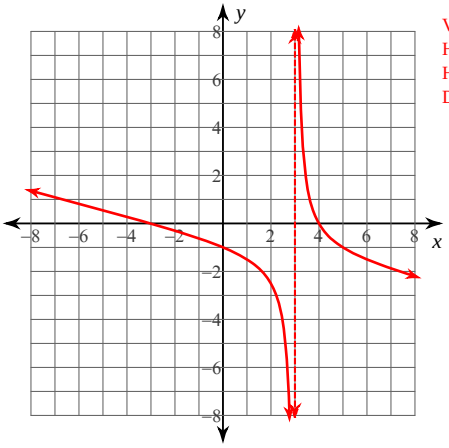
8) $\frac{8b^2 + 32b}{b^2 - 5b - 6} \div \frac{b+4}{9b+9}$ $\frac{72b}{b-6}; \{-1, 6, -4\}$

9) $\frac{49v^3 - 28v^2}{28v - 16} \div \frac{6v^2 - 2v}{2v - 6v^2}$ $-\frac{7v^2}{4}; \left\{\frac{4}{7}, 0, \frac{1}{3}\right\}$

10) $\frac{3x - 24}{90} \cdot \frac{x - 10}{x^2 - 18x + 80}$ $\frac{1}{30}; \{8, 10\}$

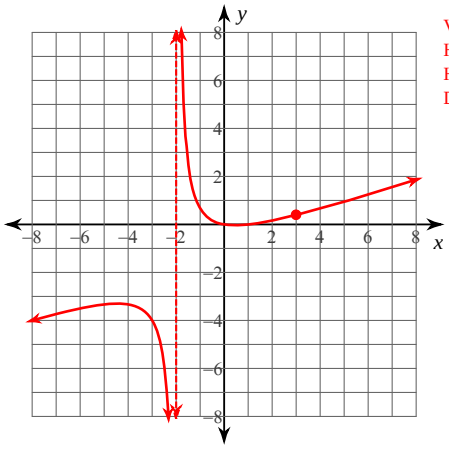
Identify the holes, vertical asymptotes, horizontal asymptote, and domain of each. Then sketch the graph.

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



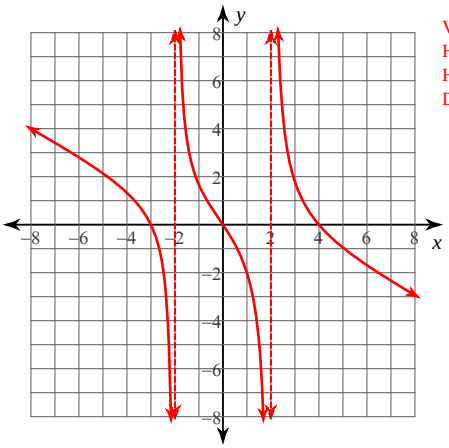
Vertical Asym.: $x = 3$
Holes: None
Horz. Asym.: None
Domain:
All reals except 3

12) $f(x) = \frac{x^3 - 4x^2 + 3x}{3x^2 - 3x - 18}$



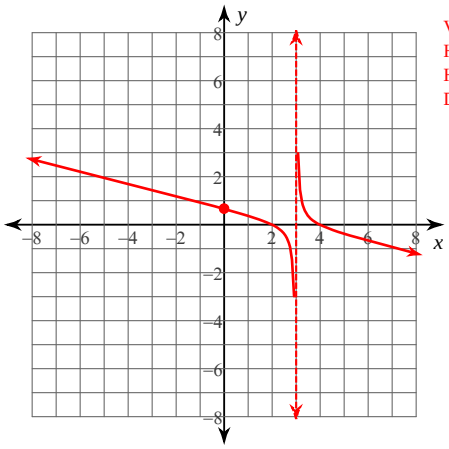
Vertical Asym.: $x = -2$
Holes: $x = 3$
Horz. Asym.: None
Domain:
All reals except -2, 3

13) $f(x) = \frac{x^3 - x^2 - 12x}{-2x^2 + 8}$



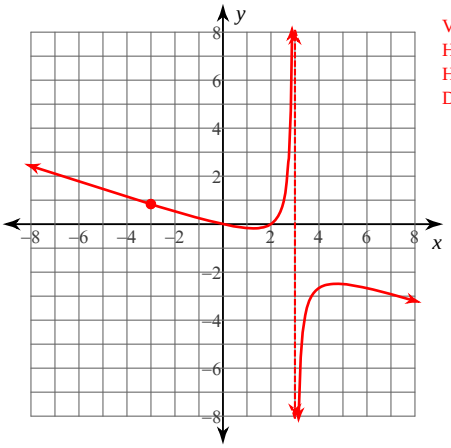
Vertical Asym.: $x = 2$, $x = -2$
Holes: None
Horz. Asym.: None
Domain:
All reals except 2, -2

14) $f(x) = \frac{x^3 - 6x^2 + 8x}{-4x^2 + 12x}$



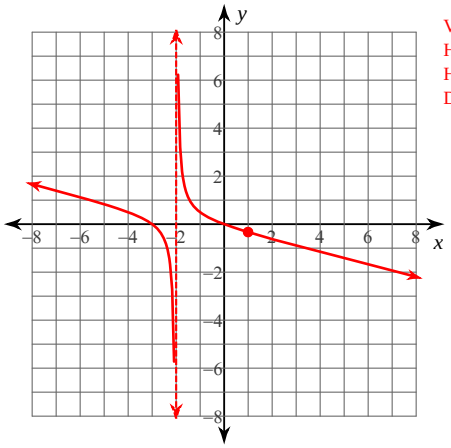
Vertical Asym.: $x = 3$
Holes: $x = 0$
Horz. Asym.: None
Domain:
All reals except 3, 0

15) $f(x) = \dfrac{x^3 + x^2 - 6x}{-3x^2 + 27}$



Vertical Asym.: $x = 3$
Holes: $x = -3$
Horz. Asym.: None
Domain:
All reals except 3, –3

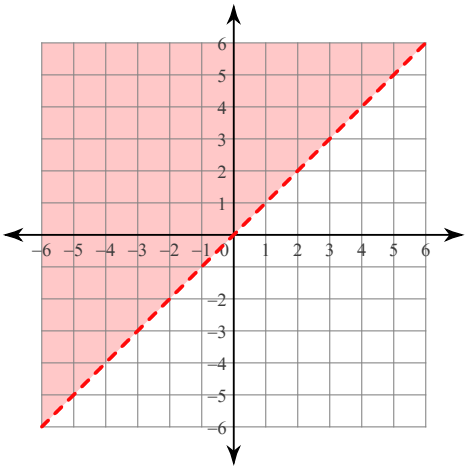
16) $f(x) = \dfrac{x^3 + 2x^2 - 3x}{-4x^2 - 4x + 8}$



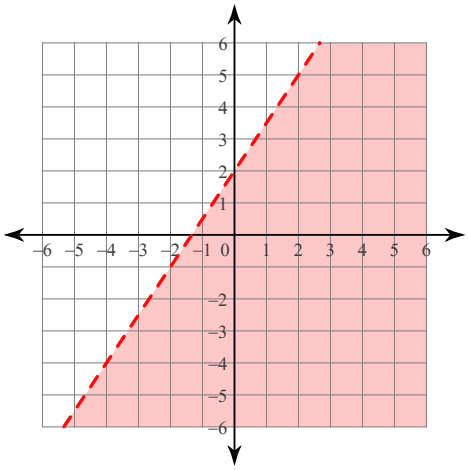
Vertical Asym.: $x = -2$
Holes: $x = 1$
Horz. Asym.: None
Domain:
All reals except –2, 1

Sketch the graph of each linear inequality.

17) $x - y < 0$



18) $3x - 2y > -4$



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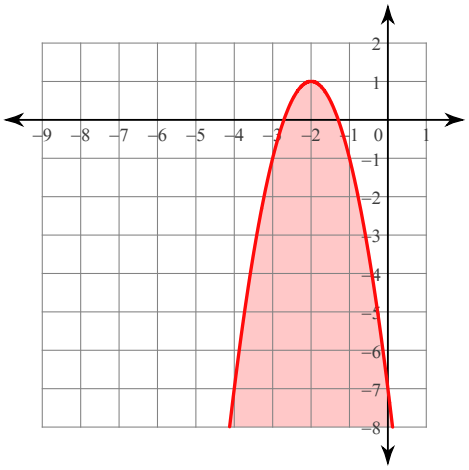

20) $y < x^2 + 8x + 19$