

Final Review: Chapter 9

Date _____ Period _____

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Solve each equation. Remember to check for extraneous solutions.

1) $\frac{x-6}{4x} - \frac{1}{x} = \frac{1}{4x}$

2) $\frac{1}{n} = \frac{n-5}{4n} + \frac{1}{4n}$

3) $\frac{1}{x^2-2x} = \frac{1}{x} + \frac{7}{x^2-2x}$

4) $\frac{8}{k^2+6k} = \frac{1}{k^2+6k} - \frac{1}{k+6}$

5) $\frac{p+1}{p-2} - \frac{1}{p-2} = 2$

6) $\frac{8}{n-1} = \frac{n+6}{n^2-n} + \frac{3n+3}{n^2-n}$

7) $\frac{3x}{x-2} = 1 + \frac{6}{x-2}$

8) $\frac{3x}{x-2} + \frac{1}{x+2} = -\frac{4}{x^2-4}$

9) $\frac{x+1}{x+3} = 2$

10) $\frac{2}{x-3} = \frac{3}{x+1}$

11) $\frac{7}{x+3} = \frac{x}{4}$

12) $\frac{6+5x}{3x} = \frac{7}{x}$

13) $\frac{5x}{x-2} = 7 + \frac{10}{x-2}$

Simplify each expression.

14) $\frac{\frac{u+2}{u+1}}{\frac{16}{u+1}}$

15) $\frac{\frac{4}{x-1}}{\frac{2}{x+4}}$

$$16) \frac{\frac{9}{2x+10} + \frac{3x+15}{4}}{x+5}$$

$$17) \frac{\frac{a+4}{5} + \frac{3}{a+4}}{\frac{5}{a+4}}$$

$$18) \frac{\frac{x}{16} + \frac{2}{3}}{\frac{12}{x^2} + \frac{9}{4}}$$

$$19) \frac{\frac{a}{a-5} + \frac{1}{a}}{\frac{a}{5} - \frac{1}{5}}$$

$$20) \frac{\frac{m-3}{m+1} + \frac{m+1}{2m-5}}{\frac{m+1}{10m-25} + \frac{m+1}{2m-5}}$$

$$21) \frac{\frac{2}{x-3} + \frac{9}{25}}{\frac{5}{3x-9} + \frac{4}{5}}$$

$$22) \frac{5r}{r+1} - \frac{6}{2r-6}$$

$$23) \frac{4}{5m-5} + \frac{4m}{2m-1}$$

$$24) \frac{25x^2 + 25x - 50}{35x^2 - 50x + 15}$$

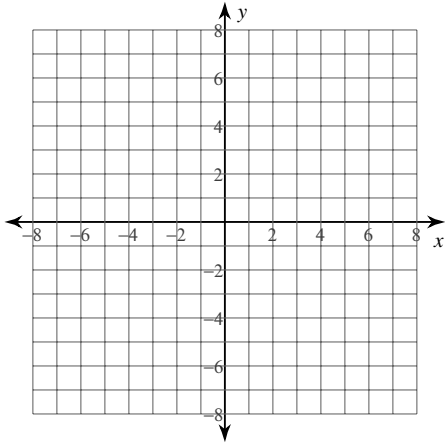
$$25) \frac{4n+4}{9n^2-9}$$

$$26) \frac{b+7}{10b^3+70b^2} \cdot \frac{10b^2+90b}{10b^2-30b}$$

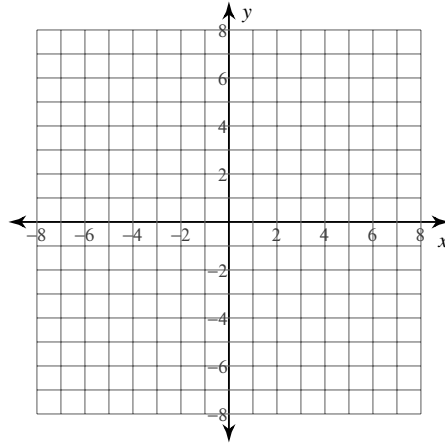
$$27) \frac{v^2-6v-16}{v^2-15v+56} \div \frac{v^2+4v+4}{10v^3-70v^2}$$

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

28) $f(x) = \frac{2x - 4}{x - 3}$



29) $f(x) = \frac{1}{4x}$



30) Do x and y show direct variation, inverse variation or neither?

a.) $x = \frac{y}{9}$

b.) $y = \frac{1}{2}x$

c.) $xy = 0.1$

d.) $y = x + 5$

31) The variables x and y vary inversely. Use the given values to write an equation relating x and y . Then find y when $x = 3$.

a.) $x = 6$ and $y = 9$.

b.) $x = 72$ and $y = \frac{1}{18}$

32) The variable z varies jointly with x and y . Use the given values to write an equation relating x , y and z . Then find z when $x = 2$ and $y = -3$.

a.) $x = 2$, $y = 4$, $z = 6$

b.) $x = 1$, $y = \frac{1}{8}$, $z = 4$