

Simplify:  $\frac{7}{a+8} + \frac{7}{a^2-64}$ .

**A**  $\frac{7a-49}{(a-8)(a+8)}$

**C**  $\frac{14}{(a-8)(a+8)}$

**B**  $\frac{14}{a^2+a-56}$

**D**  $\frac{7a+63}{(a-8)(a+8)}$

Multiply. State the excluded values:  $\frac{z^2}{z+1} \cdot \frac{z^2+3z+2}{z^2+3z}$ .

**A**  $\frac{z^2+2z}{z+3}$ ,  $z \neq -1, -3$

**C**  $\frac{z+2}{z+3}$ ,  $z \neq -1, -3$

**B**  $\frac{z+2}{z+3}$ ,  $z \neq -1, 0, -3$

**D**  $\frac{z^2+2z}{z+3}$ ,  $z \neq -1, 0, -3$

Simplify the expression and state the excluded values:  $\frac{p^2-4p-32}{p+4}$ .

**A**  $-p+8$ ;  $p \neq -4$

**C**  $-p-8$ ;  $p \neq 4$

**B**  $p-8$ ;  $p \neq -4$

**D**  $p+8$ ;  $p \neq 4$

Describe the vertical asymptote(s) and hole(s) for the graph of  $y = \frac{(x-5)(x-2)}{(x-2)(x+4)}$ .

**A** asymptote:  $x = -4$  and hole:  $x = 2$

**C** asymptote:  $x = -5$  and hole:  $x = -4$

**B** asymptotes:  $x = -4$  and  $x = 2$

**D** asymptote:  $x = 4$  and hole:  $x = -2$

Solve the equation for  $x$ :  $\frac{-2}{x+4} = \frac{4}{x+3}$ .

**A**  $-\frac{13}{6}$

**C**  $-\frac{8}{3}$

**B**  $-11$

**D**  $-\frac{11}{3}$

Solve the equation for  $w$ :  $\frac{5}{6w} + \frac{1}{w} = -4$ .

**A**  $-\frac{3}{14}$

**C**  $\frac{11}{24}$

**B**  $\frac{11}{6}$

**D**  $\frac{31}{24}$

Simplify the following expression:  $\frac{x+2}{x-1} \div \frac{x+4}{x^2+4x-5}$ .

**A**  $\frac{(x+2)(x+5)}{x+4}$ ,  $x \neq -5, -4$

**C**  $\frac{(x+2)(x+4)}{(x-1)^2(x+5)}$ ,  $x \neq 1, -5, -4$

**B**  $\frac{(x+2)(x+4)}{(x-1)^2(x+5)}$ ,  $x \neq 1, -5$

**D**  $\frac{(x+2)(x+5)}{x+4}$ ,  $x \neq 1, -4, -5$

Determine the horizontal asymptote of the function,  $y = \frac{6x^2+1}{2x^2-3}$ .

**A**  $y = 3$

**C**  $y = \frac{1}{3}$

**B**  $y = -\frac{1}{3}$

**D**  $y = -3$

<p>Which function does <b>not</b> have a horizontal asymptote.</p> <p>A <math>g(x) = \frac{x-6}{x^2+2}</math>                      C <math>g(x) = \frac{x-9}{x+3}</math></p> <p>B <math>g(x) = \frac{x^2}{-3x^2+1}</math>                      D <math>g(x) = \frac{x^3-2}{6x^2-5}</math></p>	<p>Reduce the fraction to lowest terms: <math>\frac{8x^2+4x}{2x}</math>.</p> <p>A <math>2x+1</math>    C <math>2x^2+1</math></p> <p>B <math>4x^2+2</math>    D <math>4x+2</math></p>
<p>Solve the equation <math>\frac{1}{x+2} + \frac{1}{x-2} = \frac{4}{x^2-4}</math> for <math>x</math>.</p> <p>A <math>x=1</math>    C No solution</p> <p>B <math>x=4</math>    D <math>x=2</math></p>	<p>Describe the holes for the graph of the rational function <math>y = \frac{(x-2)}{(x-2)(x+5)}</math>.</p> <p>A Hole: <math>x = -2</math>                                      C Hole: <math>x = -5</math></p> <p>B Hole: <math>x = 2</math>                                        D Hole: <math>x = 5</math></p>
<p>Determine the horizontal asymptotes of the function: <math>g(x) = \frac{x^2+1}{x-2}</math>.</p> <p>A Horizontal asymptote: <math>y = -1</math>              C Horizontal asymptote: <math>y = 1/2</math></p> <p>B Horizontal asymptote: <math>y = 2</math>                D There is no horizontal asymptote</p>	<p>Simplify the following rational expression, state any excluded values.</p> $\frac{4}{x^2-9} - \frac{7}{x+3}$ <p>A <math>\frac{7x+25}{x^2-9}, x \neq \pm 3</math>                              C <math>\frac{-7x+25}{x^2-9}, x \neq \pm 3</math></p> <p>B <math>\frac{7x-17}{x^2-9}, x \neq \pm 3</math>                              D <math>\frac{-7x-17}{x^2-9}, x \neq \pm 3</math></p>
<p>Simplify the following rational expression, state any excluded values..</p> $\frac{x^3-5x^2+6x}{x^2-4} \cdot \frac{x^2+3x+2}{x^2-2x-3}$ <p>A 1    C <math>\frac{x(x-2)}{(x+2)}, x \neq \pm 2, x \neq 3, x \neq -1</math></p> <p>B <math>x, x \neq \pm 2, x \neq 3, x \neq -1</math>              D <math>x</math>, no restrictions</p>	<p>Simplify the following rational expression, state any excluded values..</p> $\frac{x^2-5x+6}{x^3} \div \frac{x^2+3x-10}{4x^2}$ <p>A <math>\frac{8(x-3)}{3(x+5)}, x \neq -5, x \neq 0, x \neq 2</math>      C <math>\frac{4(x-3)(x+2)}{x(x+5)(x-2)}, x \neq -5, x \neq 0, x \neq 2</math></p> <p>B <math>\frac{(x^2-5x+6)(x^2+3x-10)}{4x^5}, x \neq 0</math>                              D <math>\frac{4(x-3)}{x(x+5)}, x \neq -5, x \neq 0, x \neq 2</math></p>