

Name: KEY

**Proficiency Check – Section 3.1 – Simplifying with Rationals**

Simplify, identify the Domain Restrictions

<p>1.</p> $\frac{x^2 - 25}{x^2 + 5x - 50}$ $\frac{(x+5)\cancel{(x-5)}}{(x+10)\cancel{(x-5)}}$ $\boxed{\frac{(x+5)}{(x+10)}}$ $\boxed{x \neq -10, 5}$	<p>2.</p> $\frac{x^2 + 5x - 6}{x^2 + 6x}$ $\frac{\cancel{(x+6)}(x-1)}{x\cancel{(x+6)}}$ $\boxed{\frac{(x-1)}{x}}$ $\boxed{x \neq 0, -6}$
<p>3.</p> $\frac{2x^2 - 4x - 70}{4x - 28}$ $\frac{2(x^2 - 2x - 35)}{4(x-7)}$ $\frac{2\cancel{(x-7)}(x+5)}{4\cancel{(x-7)}}$ $\frac{2(x+5)}{4}$ $\boxed{\frac{(x+5)}{2}}$ $\boxed{x \neq 7}$	<p>4.</p> $\frac{6x^2 + 18x + 12}{3x + 3}$ $\frac{6(x^2 + 3x + 2)}{3(x+1)}$ $\frac{2\cancel{(x+2)}\cancel{(x+1)}}{\cancel{(x+1)}}$ $\boxed{2(x+2)}$ $\boxed{x \neq -1}$

<p>5.</p> $\frac{x^2 - x - 2}{x^2 + 5x - 14}$ $\frac{(\cancel{x-2})(x+1)}{(x+7)(\cancel{x-2})}$ $\boxed{\frac{(x+1)}{(x+7)}}$ <p><math>x \neq -7, 2</math></p>	<p>6.</p> $\frac{x^2 + 9x + 18}{x^2 - 3x - 18}$ $\frac{(\cancel{x+3})(x+6)}{(x-6)(\cancel{x+3})}$ $\boxed{\frac{(x+6)}{(x-6)}}$ <p><math>x \neq 6, -3</math></p>
<p>7.</p> $\frac{2x^2 - 11x - 6}{x^2 - 5x - 6}$ <p>AC Method</p> $x^2 - 11x - 12$ $\frac{(x-12)(x+1)}{2 \quad 2}$ $\frac{(2x+1)(\cancel{x-6})}{(\cancel{x-6})(x+1)}$ $\boxed{\frac{(2x+1)}{(x+1)}}$ <p><math>x \neq 6, -1</math></p>	<p>8.</p> $\frac{3x^2 - 8x - 3}{3x^2 - 15x + 18}$ <p>Grouping <math>(3x^2 - 9x) + (x - 3)</math></p> $3x(x-3) + 1(x-3)$ $\frac{(3x+1)(x-3)}{3(x^2 - 5x + 6)}$ $\frac{(3x+1)(\cancel{x-3})}{3(x-2)(\cancel{x-3})}$ $\boxed{\frac{(3x+1)}{3(x-2)}}$ <p><math>x \neq 2, 3</math></p>