

### Unit 4 Review!!

Simplify the Rational Expression

$$1. \frac{3h^2 - 3h - 18}{h^2 - 5h + 6} = \frac{3(h^2 - h - 6)}{h^2 - 5h + 6} = \frac{3(\cancel{h-3})(h+2)}{(\cancel{h-3})(h-2)}$$

$$= \boxed{\frac{3(h+2)}{h-2}}$$

### Multiplying & Dividing Rational Expressions

$$7. \frac{x^2+6x+5}{x^2+2x-8} \cdot \frac{x^2-5x+6}{x^2+2x-15}$$

$$\frac{(x+1)(\cancel{x+5})}{(\cancel{x-2})(x+4)} \cdot \frac{(\cancel{x-3})(x-2)}{(\cancel{x-3})(x+5)} = \boxed{\frac{x+1}{x+4}}$$

\* Know how to use backwards box method

### Multiplying & Dividing Rational Expressions

$$8. \frac{a^2 - a - 2}{a^2 + 6a + 5} \div \frac{2a^2 - 3a - 2}{4a^2 - 1}$$

Keep Change Flip!

$$\frac{a^2 - a - 2}{a^2 + 6a + 5} \cdot \frac{4a^2 - 1}{2a^2 - 3a - 2}$$

$\sqrt{4a^2} = 2a$   
 $\sqrt{1} = 1$

$$\frac{(\cancel{a+1})(\cancel{a-2})}{(\cancel{a+1})(a+5)} \cdot \frac{(\cancel{2a+1})(\cancel{2a-1})}{(\cancel{2a+1})(a-2)} = \boxed{\frac{2a-1}{a+5}}$$

### Find the V.A, H.A, Holes & State the Domain

$$12. f(x) = \frac{6x^2 - 4x - 2}{x^2 - 8x + 15} = \frac{2(3x^2 - 2x - 1)}{x^2 - 8x + 15} = \frac{2(3x+1)(x-1)}{(x-3)(x-5)}$$

V.A (denominator):  $x=3, 5$   
 $\begin{array}{l} x-3=0 \\ +3 \quad +3 \\ \hline x=3 \end{array}$      $\begin{array}{l} x-5=0 \\ +5 \quad +5 \\ \hline x=5 \end{array}$

H.A (highest exponents):  $y=6$

Holes (cancelled): None

Domain:  $x \neq 3, 5$

### Adding Rational Expressions

$$15. \frac{w+3}{w^2-64} + \frac{1}{w^2-64}$$

$$= \frac{w+4}{w^2-64} = \frac{w+4}{(w+8)(w-8)}$$

$\sqrt{w^2} = w$   
 $\sqrt{64} = 8$

Homework - Study & Finish the Review!