



Quiz 3:5 – I I



Solve the equation. Check for extraneous solutions.

$$1/4. \quad x = \sqrt{6 - x}$$

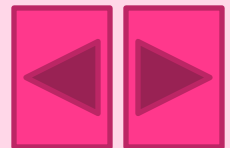
$$x^2 = (\sqrt{6 - x})^2 \quad \text{Square both sides}$$

$$x^2 = 6 - x \quad \text{Notice } x \text{ stays squared}$$

$$x^2 + x - 6 = 0 \quad \text{If } x^2, \text{ move to one side}$$

$$(x - 2)(x + 3) = 0 \quad \text{Factor}$$

Wait...not finished yet...



$$(x - 2)(x + 3) = 0$$

$$\begin{array}{r} x - 2 = 0 \\ + 2 \quad + 2 \end{array} \quad \begin{array}{r} x + 3 = 0 \\ - 3 \quad - 3 \end{array}$$

$$x = 2 \quad x = -3$$

Solve for x

Wait...not finished yet...

$$2 = \sqrt{6 - x}$$

$$2 = \sqrt{4}$$

$$2 = 2$$

$$-3 = \sqrt{6 - (-3)}$$

$$-3 = \sqrt{9} \quad -3 \neq 3$$

NO..not a solution

YES a solution



$$2/5 \quad (7x^2 + 2x - 5) \quad (x - 2)$$

If a trinomial is divided by a binomial, you must use long division

$$\begin{array}{r}
 7x + 16 \\
 \hline
 x - 2 \overline{) 7x^2 + 2x - 5} \\
 \underline{-(7x^2 - 14x)} \quad \downarrow \\
 16x - 5 \\
 \underline{-(16x - 32)} \\
 27 \\
 7x + 16 + \frac{27}{x - 2}
 \end{array}$$

What times $(x-2) = 7x^2$

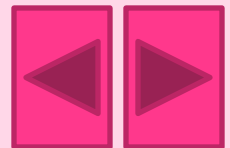
$$7x(x - 2) = 7x^2 - 14x$$

$$7x^2 - 7x^2 = 0$$

$$2x - (-14x) = 16x$$

What times $(x-2) = 16x$

$$-5 - (-32) = -5 + 32 = 27$$



3 / 1 Simplify & find the excluded values.

$$\frac{x^2 + 4x - 21}{x^2 - 5x + 6}$$
$$\frac{(x + 7)\cancel{(x - 3)}}{(x - 2)\cancel{(x - 3)}}$$

Factor the denominator.

I have to see this
to know you know
how to simplify.

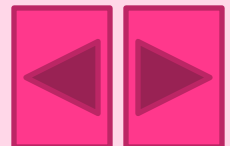
$$\frac{x + 7}{x - 2}$$

This is the excluded value part.

$$x - 2 = 0$$

$$\begin{array}{r} +2 \quad +2 \\ \hline \end{array}$$

$$x = 2$$



4/2 Find the product or quotient:

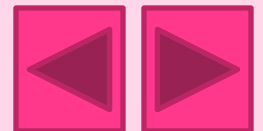
$$\frac{x^2 + x - 6}{10x^2 - 20x} \bullet \frac{5x^2 + 15x}{x^2 - 2x - 15}$$

$$\frac{(x+3)(x-2)}{10x(x-2)} \bullet \frac{5x(x+3)}{1}$$

$$\frac{(x+3)\cancel{(x-2)}}{\cancel{10x(x-2)}} \bullet \frac{\cancel{5x(x+3)}}{(x-5)\cancel{(x+3)}}$$

2

$$\frac{x+3}{2(x-5)}$$



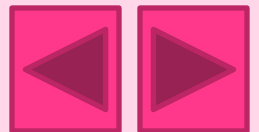
5/3 Find the product or quotient:

$$\frac{5x^2 - 10x}{4x^2 + 12} \div (x - 2)$$

$$= \frac{5x^2 - 10x}{4x^2 + 12} \bullet \frac{1}{x - 2}$$

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

$$= \frac{5x}{4(x^2 + 3)}$$

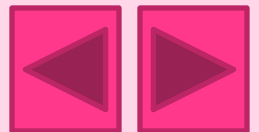


Find the sum or difference.

$$6/10 \quad \frac{2}{5x} + \frac{8}{5x}$$

$$\frac{10}{5x}$$

$$\frac{2}{x}$$



Find the sum or difference.

$$7/9 \quad \frac{11}{12x^2} + \frac{15}{16x^5}$$

LCD

$$12: 2 \cdot 2 \cdot 3$$

$$16: 2 \cdot 2 \cdot 2 \cdot 2$$

LCD

$$2 \cdot 2 \cdot 3 \cdot 2 \cdot 2 = 48$$

LCD

$$x^2: x \cdot x$$

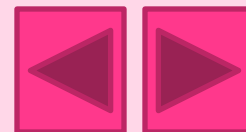
$$x^5: x \cdot x \cdot x \cdot x \cdot x$$

LCD: x^5

$$\frac{11(4x^3)}{48x^5} + \frac{15(3)}{48x^5}$$

$$\frac{44x^3}{48x^5} + \frac{45}{48x^5}$$

$$\frac{44x^3 + 45}{48x^5}$$



Find the sum or difference.

$$8 \quad \frac{12}{x+2} - \frac{4x}{5x-3x}$$

$$\frac{12}{x+2} - \frac{4x}{x(5-3)}$$

$$\frac{12}{x+2} - \frac{4x}{2x}$$

$$\text{LCD: } 2x(x+2)$$

$$\frac{12(2x)}{2x(x+2)} - \frac{4x(x+2)}{2x(x+2)}$$

$$\frac{12(2x) - 4x(x+2)}{2x(x+2)}$$

$$\frac{24x - 4x^2 - 8x}{2x(x+2)}$$

$$\frac{-4x^2 + 16x}{2x(x+2)}$$

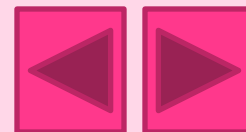
-2

$$\frac{-\cancel{4x}(x-4)}{\cancel{2x}(x+2)}$$

$$\frac{-2(x-4)}{(x+2)}$$

1

$$\frac{-2(x-4)}{(x+2)}$$



Solve the equation. Check your solution.

$$9/7 \quad \frac{\cancel{6}}{\cancel{x+5}} = \frac{\cancel{x}}{\cancel{6}}$$

$$(x)(x + 5) = 6(6)$$

$$x^2 + 5x = 36$$

$$x^2 + 5x - 36 = 0$$

$$(x - 4)(x + 9) = 0$$

$$x - 4 = 0$$

$$\begin{array}{r} +4 \quad +4 \\ \hline \end{array}$$

$$x = 4$$

$$x + 9 = 0$$

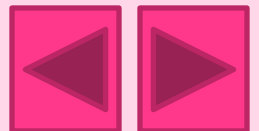
$$\begin{array}{r} -9 \quad -9 \\ \hline \end{array}$$

$$x = -9$$

**Cross
Multiply**

Distribute

**If you see x^2 , put
everything
on one side**



Solve the equation. Check your solution.

$$10/1 \quad \frac{4}{x-4} + 1 = \frac{14}{x^2 + x - 20}$$

$$\frac{4}{x-4} + 1 = \frac{14}{(x-4)(x+5)}$$

$$\frac{4}{\cancel{x-4}} \cdot \cancel{(x-4)}(x+5) + 1(x-4)(x+5) = \frac{14}{\cancel{(x-4)}(x+5)} \cdot \cancel{(x-4)}(x+5)$$

$$4(x+5) + (x-4)(x+5) = 14$$

$$4x + 20 + x^2 + 5x - 4x - 20 = 14$$

$$x^2 + 5x - 14 = 0$$

$$(x-2)(x+7) = 0$$

$$\{2, -7\}$$