Warmup

Chapter P Review

Problem #1

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$(2x+1)(x-3)=9$$

$$2x+1=9 \ \ or \ \ x-3=9$$

$$2x=8 \ \ or \ \ x=12$$

$$x=4 \ \ or \ \ x=12$$

A. Solution is correct
B. Solution is incorrect

Answer #1

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$(2x+1)(x-3)=9$$

$$2x+1=9 \text{ or } x-3=9$$

$$2x=8 \text{ or } x=12$$

$$x=4 \text{ or } x=12$$

In order to break complicated equations down into simpler ones, we often call on the Zero Product Property:

$A \cdot B = 0 \Rightarrow A = 0$ or $B = 0$

... But this conclusion is unique to products that are equal to zero. (for instance, $18(\frac{1}{2}) = 9$ but neither factor is 9)

$2x^2 - 6x + 1x - 3 = 9$

$2x^2 - 5x - 12 = 0$

$(2x + 3)(x - 4) = 0$

$2x + 3 = 0$ or $x - 4 = 0$

$2x = -3$ or $x = 4$

A. Solution is correct

B. Solution is incorrect

$x = -3/2$ or 4

Problem #2

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$x^2\left(\frac{1}{2}x-8\right)=0$$

$$x^2=0 \text{ or } \frac{1}{2}x-8=0$$

$$x=0 \text{ or } \frac{1}{2}x=8$$

$$x=0 \text{ or } x=16$$

A. Solution is correct

B. Solution is incorrect

Answer #2

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$x^2\left(\frac{1}{2}x-8\right)=0$$

$$x^2=0 \text{ or } \frac{1}{2}x-8=0$$

$$x=0 \text{ or } \frac{1}{2}x=8$$

$$x=0 \text{ or } x=16$$

A. Solution is correct

B. Solution is incorrect

Problem #3

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$(3x-1)^2 = 64$$

$$3x-1=8$$

$$3x=9$$

$$x=3$$

A. Solution is correct

B. Solution is incorrect

Answer #3

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$x^2 = a \rightarrow x = \pm\sqrt{a}$

(don't forget the "±" !!)

$$(3x-1)^2 = 64$$

$$3x-1=8 \quad \text{or} \quad 3x-1=-8$$

$$3x=9 \qquad 3x=-7$$

$$x=3 \qquad x=-\tfrac{7}{3}$$

$\left\{3, -\frac{7}{3}\right\}$

A. Solution is correct

B. Solution is incorrect

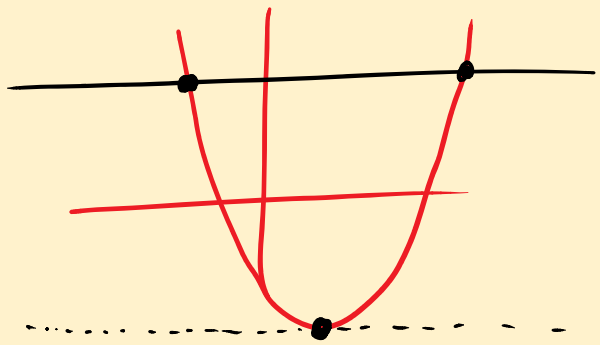
Pro Tip

think graphically

left side = parabola

right side = horizontal line

It would be unusual to have only one intersection point!! :)



Problem #4

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$\sqrt{2x-1}+8=3$$

$$\sqrt{2x-1}=-5$$

$$2x-1=25$$

$$2x=26$$

$$x=13$$

A. Solution is correct

B. Solution is incorrect

Answer #4

Determine if the solution is correct or not.
If incorrect, be prepared to provide correct solution.

$$\sqrt{2x-1}+8=3$$

$$\sqrt{2x-1}=-5$$

$$2x-1=25$$

$$2x=26$$

$$x=13$$

A. Solution is correct

B. Solution is incorrect

Squaring both sides may be necessary, but it often creates extraneous solutions, so doing so means you must Check all answers in the original equation.

$\sqrt{2(13)-1}+8 \neq 3$

Pro tip

notice that right here we could have identified an impossible situation (since a principle square root is always non-negative)

NO SOLUTION – DONE!