

Daily Math

Week 28 (2013-2014)

Monday March 10, 2014

Tuesday March 11, 2014

Wednesday March 12, 2014

Thursday March 13, 2014

Friday March 14, 2014

Monday, March 10, 2014

1st

Decide what must be added to $x^2 + 20x$ to make it a perfect square.

Monday, March 10, 2014

1st

Decide what must be added to $x^2 + 20x$ to make it a perfect square.

Answer:

Divide the x 's in half and square the result:

$$(20 \div 2)^2 = 10^2 \\ = \mathbf{100}$$

	x	+10
x	x^2	$+10x$
+10	$+10x$	+100

Thus, $x^2 + 20x + \mathbf{100} = (x + 10)^2$, a perfect square

Monday, March 10, 2014

2nd

Decide what must be added to $x^2 + 2x$ to make it a perfect square.

Monday, March 10, 2014

2nd

Decide what must be added to $x^2 + 2x$ to make it a perfect square.

Answer: Divide the x 's in half and square the result: $(2 \div 2)^2 = 1^2$
 $= 1$

Thus, $x^2 + 2x + 1 = (x + 1)^2$, a perfect square

Monday, March 10, 2014

3rd

Decide what must be added to $x^2 - 6x$ to make it a perfect square.

Monday, March 10, 2014

3rd

Decide what must be added to $x^2 - 6x$ to make it a perfect square.

Answer: Divide the x's in half and square the result: $(-6 \div 2)^2 = (-3)^2$
 $= 9$

Thus, $x^2 - 6x + 9 = (x - 3)^2$, a perfect square

Monday, March 10, 2014

4th

Decide what must be added to $x^2 - 10x$ to make it a perfect square.

Monday, March 10, 2014

4th

Decide what must be added to $x^2 - 10x$ to make it a perfect square.

Answer: Divide the x's in half and square the result: $(-10 \div 2)^2 = (-5)^2$
 $= 25$

Thus, $x^2 - 10x + 25 = (x - 5)^2$, a perfect square

Monday, March 10, 2014

5th

Decide what must be added to $x^2 - 12x$ to make it a perfect square.

Monday, March 10, 2014

5th

Decide what must be added to $x^2 - 12x$ to make it a perfect square.

Answer: Divide the x's in half and square the result: $(-12 \div 2)^2 = (-6)^2$
 $= 36$

Thus, $x^2 - 12x + 36 = (x - 6)^2$, a perfect square

Monday, March 10, 2014

6th

Decide what must be added to $x^2 + 18x$ to make it a perfect square.

Monday, March 10, 2014

6th

Decide what must be added to $x^2 + 18x$ to make it a perfect square.

Answer: Divide the x's in half and square the result: $(18 \div 2)^2 = 9^2$
 $= 81$

Thus, $x^2 + 18x + 81 = (x + 9)^2$, a perfect square

Monday, March 10, 2014

7th

Decide what must be added to $x^2 - 24x$ to make it a perfect square.

Monday, March 10, 2014

7th

Decide what must be added to $x^2 - 24x$ to make it a perfect square.

Answer: Divide the x's in half and square the result: $(-24 \div 2)^2 = (-12)^2$
 $= 144$

Thus, $x^2 - 24x + 144 = (x - 12)^2$, a perfect square

Tuesday, March 11, 2014

1st

Alicia claims that the solution to $x^2 + 6x = 7$ is 1. Bethany claims that the solution is 2. Carlos claims that the solution is -7. Who's correct?

Tuesday, March 11, 2014

1st

Alicia claims that the solution to $x^2 + 6x = 7$ is 1. Bethany claims that the solution is 2. Carlos claims that the solution is -7. Who's correct?

Answer: Try the solutions:

Alicia: $(1)^2 + 6(1) = 1 + 6 = 7$. *Yes*

Bethany: $(2)^2 + 6(2) = 4 + 12 = 16$. *No*

Carlos: $(-7)^2 + 6(-7) = 49 + (-42)$
 $= 7$. *Yes*

Both Alicia and Carlos are correct. There are two solutions.

Tuesday, March 11, 2014

2nd

Alicia claims that the solution to $x^2 - 6x = 7$ is 1. Bethany claims that the solution is -1. Carlos claims that the solution is 7. Who's correct?

Tuesday, March 11, 2014

2nd

Alicia claims that the solution to $x^2 - 6x = 7$ is 1. Bethany claims that the solution is -1. Carlos claims that the solution is 7. Who's correct?

Answer: Try the solutions:

Alicia: $(1)^2 - 6(1) = 1 - 6 = -5$. *No*

Bethany: $(-1)^2 - 6(-1) = 1 + 6 = 7$. *Yes*

Carlos: $(7)^2 - 6(7) = 49 - 42$
 $= 7$. *Yes*

Both Bethany and Carlos are correct. There are two solutions.

Tuesday, March 11, 2014

3rd

George claims that the solution to $x^2 + 8x = -15$ is -3. Haloti claims that the solution is 7. Irma claims that the solution is -5. Who's correct?

Tuesday, March 11, 2014

3rd

George claims that the solution to $x^2 + 8x = -15$ is -3. Haloti claims that the solution is 7. Irma claims that the solution is -5. Who's correct?

Answer: Try the solutions:

George: $(-3)^2 + 8(-3) = 9 + (-24) = -15$. *Yes*

Haloti: $(7)^2 + 8(7) = 49 + 56 = 105$. *No*

Irma: $(-5)^2 + 8(-5) = 25 + (-40)$
 $= -15$ *Yes*

Both George and Irma are correct. There are two solutions.

Tuesday, March 11, 2014

4th

Solve: $x^2 = 35$

Tuesday, March 11, 2014

4th

Solve: $x^2 = 35$

Answer: $x^2 = 35$
 $\sqrt{x^2} = \pm\sqrt{35}$

Tuesday, March 11, 2014

5th

Solve: $x^2 = 14$

Tuesday, March 11, 2014

5th

Solve: $x^2 = 14$

Answer: $x^2 = 14$
 $\sqrt{x^2} = \pm\sqrt{14}$

Tuesday, March 11, 2014

6th

Solve: $x^2 = 400$

Tuesday, March 11, 2014

6th

Solve: $x^2 = 400$

Answer: $x^2 = 400$

$$\sqrt{x^2} = \pm\sqrt{400}$$

$$**x = \pm 20**$$

Tuesday, March 11, 2014

7th

Solve: $3x^2 = 60$

Tuesday, March 11, 2014

7th

Solve: $3x^2 = 60$

Answer: $3x^2 = 60$

$$3x^2 \div 3 = 60 \div 3$$

$$x^2 = 20$$

$$\sqrt{x^2} = \pm\sqrt{20} = \pm\sqrt{4}\sqrt{5}$$

$$x = \pm 2\sqrt{5}$$

Wednesday, March 12, 2014

1st

Solve: $7x^2 = 56$

Wednesday, March 12, 2014

1st

Solve: $7x^2 = 56$

Answer: $7x^2 = 56$

$$7x^2 \div 7 = 56 \div 7$$

$$x^2 = 8$$

$$\sqrt{x^2} = \pm\sqrt{8} = \pm\sqrt{4}\sqrt{2}$$

$$x = \pm 2\sqrt{2}$$

Wednesday, March 12, 2014 **2nd**

Solve: $2x^2 - 20 = 0$

Wednesday, March 12, 2014 2nd

Solve: $2x^2 - 20 = 0$

Answer: $2x^2 - 20 = 0$

$$2x^2 - 20 + 20 = 0 + 20$$

$$2x^2 = 20$$

$$2x^2 \div 2 = 20 \div 2$$

$$x^2 = 10$$

$$\sqrt{x^2} = \pm\sqrt{10}$$

$$x = \pm\sqrt{10}$$

Wednesday, March 12, 2014 **3rd**

Solve: $95 = 5x^2$

Wednesday, March 12, 2014 3rd

Solve: $95 = 5x^2$

Answer: $5x^2 = 95$

$$5x^2 \div 5 = 95 \div 5$$

$$x^2 = 19$$

$$\sqrt{x^2} = \pm\sqrt{19}$$

$$x = \pm\sqrt{19}$$

Wednesday, March 12, 2014 4th

Solve: $(x - 5)^2 = 16$

Wednesday, March 12, 2014

4th

Solve: $(x - 5)^2 = 16$

Answer: $(x - 5)^2 = 16$

$$\sqrt{(x - 5)^2} = \sqrt{16}$$

$$x - 5 = \pm 4$$

$$x - 5 + 5 = 5 \pm 4$$

$$x = 5 \pm 4$$

$$x = 5 + 4 = 9 \text{ or}$$

$$x = 5 - 4 = 1$$

Wednesday, March 12, 2014

5th

Solve: $(x + 3)^2 = 49$

Wednesday, March 12, 2014

5th

Solve: $(x + 3)^2 = 49$

Answer: $(x + 3)^2 = 49$

$$\sqrt{(x + 3)^2} = \sqrt{49}$$

$$x + 3 = \pm 7$$

$$x + 3 - 3 = -3 \pm 7$$

$$x = -3 \pm 7$$

$$x = -3 + 7 = 4 \text{ or}$$

$$x = -3 - 7 = -10$$

Wednesday, March 12, 2014

6th

Solve: $(x - 1)^2 = 25$

Wednesday, March 12, 2014

6th

Solve: $(x - 1)^2 = 25$

Answer: $(x - 1)^2 = 25$

$$\sqrt{(x - 1)^2} = \sqrt{25}$$

$$x - 1 = \pm 5$$

$$x - 1 + 1 = 1 \pm 5$$

$$x = 1 \pm 5$$

$$x = 1 + 5 = 6 \text{ or}$$

$$x = 1 - 5 = -4$$

Wednesday, March 12, 2014

7th

Solve: $(x + 2)^2 = 36$

Wednesday, March 12, 2014

7th

Solve: $(x + 2)^2 = 36$

Answer: $(x + 2)^2 = 36$

$$\sqrt{(x + 2)^2} = \sqrt{36}$$

$$x + 2 = \pm 6$$

$$x + 2 - 2 = -2 \pm 6$$

$$x = -2 \pm 6$$

$$x = -2 + 6 = 4 \text{ or}$$

$$x = -2 - 6 = -8$$

Thursday, March 13, 2014

1st

$$\text{Solve: } (x - 6)(x - 1) = 0$$

Thursday, March 13, 2014

1st

$$\text{Solve: } (x - 6)(x - 1) = 0$$

$$\text{Answer: } (x - 6)(x - 1) = 0$$

$$\text{Either } x - 6 = 0 \text{ or } x - 1 = 0$$

$$\mathbf{x = 6} \text{ or } \mathbf{x = 1}$$

Thursday, March 13, 2014

2nd

$$\text{Solve: } (x + 3)(x - 3) = 0$$

Thursday, March 13, 2014

2nd

$$\text{Solve: } (x + 3)(x - 3) = 0$$

$$\text{Answer: } (x + 3)(x - 3) = 0$$

$$\text{Either } x + 3 = 0 \text{ or } x - 3 = 0$$

$$**x = -3** \text{ or } **x = 3**$$

Thursday, March 13, 2014

3rd

Solve: $x(x - 4) = 0$

Thursday, March 13, 2014

3rd

$$\text{Solve: } x(x - 4) = 0$$

$$\text{Answer: } x(x - 4) = 0$$

$$\text{Either } x = 0 \text{ or } x - 4 = 0$$

$$**x = 0** \text{ or } **x = 4**$$

Thursday, March 13, 2014

4th

Solve: $(x - 3)(x + 6) = 0$

Thursday, March 13, 2014

4th

$$\text{Solve: } (x - 3)(x + 6) = 0$$

$$\text{Answer: } (x - 3)(x + 6) = 0$$

$$\text{Either } x - 3 = 0 \text{ or } x + 6 = 0$$

$$**x = 3** \text{ or } **x = -6**$$

Thursday, March 13, 2014

5th

Solve: $3x(x - 5) = 0$

Thursday, March 13, 2014

5th

$$\text{Solve: } 3x(x - 5) = 0$$

$$\text{Answer: } 3x(x - 5) = 0$$

$$\text{Either } 3x = 0 \text{ or } x - 5 = 0$$

$$**x = 0** \text{ or } **x = 5**$$

Thursday, March 13, 2014

6th

$$\text{Solve: } (2x - 1)(x + 1) = 0$$

Thursday, March 13, 2014

6th

$$\text{Solve: } (2x - 1)(x + 1) = 0$$

$$\text{Answer: } (2x - 1)(x + 1) = 0$$

$$\text{Either } 2x - 1 = 0 \text{ or } x + 1 = 0$$

$$2x - 1 + 1 = 0 + 1$$

$$2x = 1$$

$$2x \div 2 = 1 \div 2$$

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

Thursday, March 13, 2014

7th

$$\text{Solve: } x(x - 2)(x - 1) = 0$$

Thursday, March 13, 2014

7th

$$\text{Solve: } x(x - 2)(x - 1) = 0$$

$$\text{Answer: } x(x - 2)(x - 1) = 0$$

$$\text{Either } x = 0, x - 2 = 0, x - 1 = 0$$

$$\mathbf{x = 0, x = 2, \text{ or } x = 1}$$

Friday, March 14, 2014

1st

Factor and solve:

$$x^2 - 5x - 24 = 0$$

Friday, March 14, 2014

1st

Factor and solve:

$$x^2 - 5x - 24 = 0$$

Answer: $x^2 - 5x - 24 = 0$

Find two numbers that add to -5 and multiply to -24: -8 and 3

$$(x - 8)(x + 3) = 0$$

Either $x - 8 = 0$ or $x + 3 = 0$

$$**x = 8** \text{ or } **x = -3**$$

Friday, March 14, 2014

2nd

Factor and solve:

$$x^2 - 10x - 9 = 0$$

Friday, March 14, 2014

2nd

Factor and solve:

$$x^2 - 10x + 9 = 0$$

Answer: $x^2 - 10x + 9 = 0$

Find two numbers that add to -10 and multiply to 9: -9 and -1

$$(x - 9)(x - 1)$$

Either $x - 9 = 0$ or $x - 1 = 0$

$$x = 9 \text{ or } x = 1$$

Friday, March 14, 2014

3rd

Factor and solve:

$$x^2 + 11x + 30 = 0$$

Friday, March 14, 2014

3rd

Factor and solve:

$$x^2 + 11x + 30 = 0$$

Answer: $x^2 + 11x + 30 = 0$

Find two numbers that add to 11 and multiply to 30: 5 and 6

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

Either $x + 5 = 0$ or $x + 6 = 0$

$$x = -5 \text{ or } x = -6$$

Friday, March 14, 2014

4th

Factor and solve:

$$x^2 + 15x + 44 = 0$$

Friday, March 14, 2014

4th

Factor and solve:

$$x^2 + 15x + 44 = 0$$

Answer: Find two numbers that add to 15 and multiply to 44: 11 and 4

$$(x + 11)(x + 4)$$

Either $x + 11 = 0$ or $x + 4 = 0$

$$x = -11 \text{ or } x = -4$$

Friday, March 14, 2014

5th

Factor and solve:

$$x^2 - 49 = 0$$

Friday, March 14, 2014

5th

Factor and solve:

$$x^2 - 49 = 0$$

Answer: $x^2 + 0x - 49 = 0$

Find two numbers that add to 0 and multiply to -49: -7 and 7

$$(x - 7)(x + 7)$$

Either $x - 7 = 0$ or $x + 7 = 0$

$$x = 7 \text{ or } x = -7$$

Friday, March 14, 2014

6th

Factor and solve:

$$x^2 - 6x = 0$$

Friday, March 14, 2014

6th

Factor and solve:

$$x^2 - 6x = 0$$

Answer: $x^2 - 6x = 0$

$$x(x - 6)$$

Either $x = 0$ or $x - 6 = 0$

$$**x = 0** \text{ or } **x = 6**$$

Friday, March 14, 2014

7th

Factor and solve:

$$x^2 + 4x = 0$$

Friday, March 14, 2014

7th

Factor and solve:

$$x^2 + 4x = 0$$

Answer: $x^2 + 4x = 0$

$$x(x + 4)$$

Either $x = 0$ or $x + 4 = 0$

$$**x = 0** \text{ or } **x = -4**$$