

# 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

1<sup>st</sup>

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

# Monday, March 10, 2014

# 1<sup>st</sup>

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:

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

	<b>x</b>	<b>+10</b>
<b>x</b>	$x^2$	$+10x$
<b>+10</b>	$+10x$	<b>+100</b>

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

Monday, March 10, 2014

2<sup>nd</sup>

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

Monday, March 10, 2014

2<sup>nd</sup>

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

3<sup>rd</sup>

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

Monday, March 10, 2014

3<sup>rd</sup>

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

4<sup>th</sup>

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



Monday, March 10, 2014

4<sup>th</sup>

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

5<sup>th</sup>

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

Monday, March 10, 2014

5<sup>th</sup>

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

6<sup>th</sup>

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

Monday, March 10, 2014

6<sup>th</sup>

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

7<sup>th</sup>

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

Monday, March 10, 2014

7<sup>th</sup>

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

1<sup>st</sup>

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

# 1<sup>st</sup>

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

2<sup>nd</sup>

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

2<sup>nd</sup>

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

3<sup>rd</sup>

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

3<sup>rd</sup>

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

4<sup>th</sup>

Solve:  $x^2 = 35$

Tuesday, March 11, 2014

4<sup>th</sup>

Solve:  $x^2 = 35$

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

Tuesday, March 11, 2014

5<sup>th</sup>

Solve:  $x^2 = 14$



Tuesday, March 11, 2014

5<sup>th</sup>

Solve:  $x^2 = 14$

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

Tuesday, March 11, 2014

6<sup>th</sup>

Solve:  $x^2 = 400$

Tuesday, March 11, 2014

6<sup>th</sup>

Solve:  $x^2 = 400$

Answer:  $x^2 = 400$   
 $\sqrt{x^2} = \pm\sqrt{400}$   
 **$x = \pm 20$**

Tuesday, March 11, 2014

7<sup>th</sup>

Solve:  $3x^2 = 60$

Tuesday, March 11, 2014

7<sup>th</sup>

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

1<sup>st</sup>

Solve:  $7x^2 = 56$

Wednesday, March 12, 2014

1<sup>st</sup>

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

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

$$x - 5 = \pm 4$$

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

$$x = 5 \pm 4$$

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

$$x = 5 - 4 = \mathbf{1}$$

Wednesday, March 12, 2014

5<sup>th</sup>

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

Wednesday, March 12, 2014

5<sup>th</sup>

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

6<sup>th</sup>

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



Wednesday, March 12, 2014

6<sup>th</sup>

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

7<sup>th</sup>

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

Wednesday, March 12, 2014

7<sup>th</sup>

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**

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



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**

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

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  $x + 4 = 0$

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