

Daily Math

Week 23 (2013-2014)

Mon. February 3, 2014

Tues. February 4, 2014

Wed. February 5, 2014

Thurs. February 6, 2014

Fri. February 7, 2014

Monday, February 3, 2014

1st

Solve for x :

$$(6x + 9) - (2x - 5) = 38$$

Monday, February 3, 2014

1st

Solve for x :

$$(6x + 9) - (2x - 5) = 38$$

Answer:

$$(6x + 9) - (2x - 5) = 38$$

$$6x + 9 - 2x + 5 = 38$$

$$4x + 14 = 38$$

$$4x + 14 - 14 = 38 - 14$$

$$4x = 24$$

$$4x \div 4 = 24 \div 4$$

$$**x = 6**$$

Monday, February 3, 2014

2nd

Expand: $8m^2(3m^5 - 2m^4)$

Monday, February 3, 2014

2nd

Expand:

$$8m^2(3m^5 - 2m^4)$$

Answer: $8m^2(3m^5 - 2m^4)$

$$24m^7 - 16m^6$$

Monday, February 3, 2014

3rd

Find the greatest common factor:

$$5a^2 + 2a$$

Monday, February 3, 2014

3rd

Find the greatest common factor:

$$5a^2 + 2a$$

Answer: $5a^2 = 5 \cdot a \cdot a$

$$2a = 2 \cdot a$$

$$\text{GCF} = a$$

Monday, February 3, 2014

4th

Expand and simplify:

$$(x + 2)(x + 2)$$

Monday, February 3, 2014

4th

Expand and simplify:

$$(x + 2)(x + 2)$$

Answer: $(x + 2)(x + 2)$

$$x(x + 2) + 2(x + 2)$$

$$x^2 + 2x + 2x + 4$$

$$**x^2 + 4x + 4**$$

Monday, February 3, 2014

5th

Find two integers whose product is -20
and whose sum is -1.

Monday, February 3, 2014

5th

Find two integers whose product is -20 and whose sum is -1.

Answer:

Factor 1	Factor 2	Sum
1	-20	$1 + -20 = -19$
2	-10	$2 + -10 = -8$
4	-5	$4 + -5 = -1$
5	-4	$5 + -4 = 1$
10	-2	$10 + -2 = 8$
20	-1	$20 + -1 = 19$

Monday, February 3, 2014

6th

If $x = 60$, $y = 5$, and $z = 2$, then $\sqrt{\frac{x}{2zy}} = ?$

Monday, February 3, 2014

6th

If $x = 60$, $y = 5$, and $z = 2$, then $\sqrt{\frac{x}{2zy}} = ?$

Answer: $\sqrt{\frac{x}{2zy}}$

$$\sqrt{\frac{60}{2(2)(5)}} = \sqrt{\frac{60}{20}} = \sqrt{3}$$

Monday, February 3, 2014

7th

Find the polynomial for the perimeter of a triangle whose sides are $(x^2 + 3x + 2)$, $(2x^2 - 5x - 3)$, and $(x^2 + 8x + 15)$.

Monday, February 3, 2014

7th

Find the polynomial for the perimeter of a triangle whose sides are $(x^2 + 3x + 2)$, $(2x^2 - 5x - 3)$, and $(x^2 + 8x + 15)$.

Answer:

Perimeter = Sum of the sides

$$(x^2 + 3x + 2) + (2x^2 - 5x - 3) + (x^2 + 8x + 15)$$

$$(x^2 + 2x^2 + x^2) + (3x - 5x + 8x) + (2 - 3 + 15)$$

$$**4x^2 + 6x + 14**$$

Tuesday, February 4, 2014

1st

Expand:

$$7x^2y(3x^2y + 2xy^2 + x^3)$$

Tuesday, February 4, 2014

1st

Expand:

$$7x^2y(3x^2y + 2xy^2 + x^3)$$

Answer:

$$7x^2y(3x^2y + 2xy^2 + x^3)$$

$$21x^4y^2 + 14x^3y^3 + 7x^5y$$

Tuesday, February 4, 2014

2nd

Find the greatest common factor:

$$5x^2y + xy + 7xy^2$$

Tuesday, February 4, 2014

2nd

Find the greatest common factor:

$$5x^2y + xy + 7xy^2$$

Answer:

$$5x^2y = 5 \cdot x \cdot x \cdot y$$

$$xy = x \cdot y$$

$$7xy^2 = 7 \cdot x \cdot y \cdot y$$

$$\text{GCF} = xy$$

Tuesday, February 4, 2014

3rd

Expand and simplify:

$$(y - 3)(y - 3)$$

Tuesday, February 4, 2014

3rd

Expand and simplify:

$$(y - 3)(y - 3)$$

Answer: $(y - 3)(y - 3)$

$$y(y - 3) - 3(y - 3)$$
$$y^2 - 3y - 3y + 9$$

$$y^2 - 6y + 9$$

Tuesday, February 4, 2014

4th

Find two integers whose product is -24 and whose sum is 5.

Tuesday, February 4, 2014

4th

Find two integers whose product is -24 and whose sum is 5.

Answer:

Factor 1	Factor 2	Sum
1	-24	$1 + -24 = -23$
2	-12	$2 + -12 = -10$
3	-8	$3 + -8 = -5$
4	-6	$4 + -6 = -2$
6	-4	$6 + -4 = 2$
8	-3	$8 + -3 = 5$
12	-2	$12 + -2 = -10$
24	-1	$24 + -1 = 23$

Tuesday, February 4, 2014

5th

If $x = 125$, $y = 5$, and $z = 2$, then

$$z(\sqrt{x} + \sqrt{y}) = ?$$

Tuesday, February 4, 2014

5th

If $x = 125$, $y = 5$, and $z = 2$, then

$$z(\sqrt{x} + \sqrt{y}) = ?$$

Answer: $2(\sqrt{125} + \sqrt{5})$

$$2(\sqrt{25}\sqrt{5} + \sqrt{5})$$

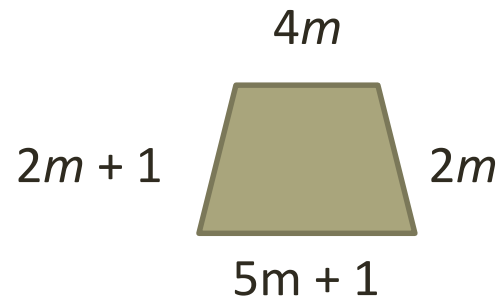
$$2(5\sqrt{5} + \sqrt{5})$$

$$2(6\sqrt{5}) = 12\sqrt{5}$$

Tuesday, February 4, 2014

6th

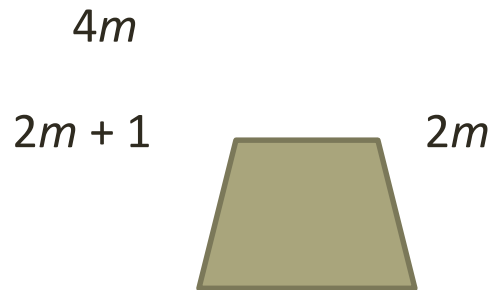
Find the value of m if the perimeter of the trapezoid is 67.



Tuesday, February 4, 2014

6th

Find the value of m if the perimeter of the trapezoid is 67.



Answer:

$$4m + 2m + (5m + 1) + (2m + 1) = 67$$

$$13m + 2 = 67$$

$$13m + 2 - 2 = 67 - 2$$

$$13m = 65$$

$$13m \div 13 = 65 \div 13$$

$$m = 5$$

Tuesday, February 4, 2014

7th

Expand:

$$30a(2a + b - 3c)$$

Tuesday, February 4, 2014

7th

Expand:

$$30a(2a + b - 3c)$$

Answer: $30a(2a + b - 3c)$

$$**60a + 30b - 90c**$$

Wednesday, February 5, 2014 1st

Factor:

$$x^2y^2 + x^3y$$

Wednesday, February 5, 2014

1st

Factor:

$$x^2y^2 + x^3y$$

Answer: $x^2y^2 = x \cdot x \cdot y \cdot y$

$$x^3y = x \cdot x \cdot x \cdot y$$

$$x \cdot x \cdot y(y + x)$$

$$x^2y(y + x)$$

Wednesday, February 5, 2014 **2nd**

Expand and simplify: $(m + 8)^2$

Wednesday, February 5, 2014 2nd

Expand and simplify: $(m + 8)^2$

Answer: $(m + 8)^2 = (m + 8)(m + 8)$

$$m(m + 8) + 8(m + 8)$$

$$m^2 + 8m + 8m + 64$$

$$**m^2 + 16m + 64**$$

Wednesday, February 5, 2014 **3rd**

Find two integers whose product is -60
and whose sum is -11 .

Wednesday, February 5, 2014 3rd

Find two integers whose product is -60 and whose sum is -11.

Answer:

Factor 1	Factor 2	Sum
1	-60	$1 + -60 = -59$
2	-30	$2 + -30 = -28$
3	-20	$3 + -20 = -17$
4	-15	$4 + -15 = -11$
5	-12	$5 + -12 = -7$
6	-10	$6 + -10 = -4$
10	-6	$10 + -6 = 4$
12	-5	$12 + -5 = 7$
15	-4	$15 + -4 = 11$
20	-3	$20 + -3 = -17$
30	-2	$30 + -2 = -28$
60	-1	$60 + -1 = -59$

Wednesday, February 5, 2014 4th

$3\sqrt{5}$ is between which two integers?

Wednesday, February 5, 2014 4th

$3\sqrt{5}$ is between which two integers?

Answer: $3\sqrt{5} = \sqrt{9}\sqrt{5} = \sqrt{45}$

$$\sqrt{36} < \sqrt{45} < \sqrt{49}$$

$$6 < \sqrt{45} < 7$$

Wednesday, February 5, 2014

5th

Simplify:

$$\frac{12x^5y^7z^3}{15x^7y^3z^3}$$

Wednesday, February 5, 2014 5th

Simplify:

$$\frac{12x^5y^7z^3}{15x^7y^3z^3}$$

Answer: $\frac{12x^5y^7z^3}{15x^7y^3z^3}$

$$\frac{12y^4}{15x^2} = \frac{3 \cdot 4 \cdot y^4}{3 \cdot 5 \cdot x^2} = \frac{4y^4}{5x^2}$$

Wednesday, February 5, 2014 6th

Expand:

$$6x^2(7x^2 - 5x - 6)$$

Wednesday, February 5, 2014

6th

Expand:

$$6x^2(7x^2 - 5x - 6)$$

Answer: $6x^2(7x^2 - 5x - 6)$

$$42x^4 - 30x^3 - 36x^2$$

Wednesday, February 5, 2014

7th

Factor:

$$5a^5 + 3a^4 + 6a^3$$

Wednesday, February 5, 2014

7th

Factor:

$$5a^5 + 3a^4 + 6a^3$$

$$\text{Answer: } 5a^5 = 5 \cdot a \cdot a \cdot a \cdot a \cdot a$$

$$3a^4 = 3 \cdot a \cdot a \cdot a \cdot a$$

$$6a^3 = 3 \cdot 2 \cdot a \cdot a \cdot a$$

$$a \cdot a \cdot a (5 \cdot a \cdot a + 3 \cdot a + 3 \cdot 2)$$

$$a^3 (5a^2 + 3a + 6)$$

Thursday, February 6, 2014

1st

Expand and simplify:

$$(n - 5)^2$$

Thursday, February 6, 2014

1st

Expand and simplify:

$$(n - 5)^2$$

$$\text{Answer: } (n - 5)^2 = (n - 5)(n - 5)$$

$$n(n - 5) - 5(n - 5)$$

$$n^2 - 5n - 5n + 25$$

$$\mathbf{n^2 - 10n + 25}$$

Thursday, February 6, 2014 **2nd**

Find two integers whose product is -180 and whose sum is 11.

Thursday, February 6, 2014

2nd

Find two integers whose product is -180 and whose sum is 11.

Answer:

Factor 1	Factor 2	Sum	Factor 1	Factor 2	Sum
1	-180	$1 + -180 = -179$	15	-12	$15 + -12 = 3$
2	-90	$2 + -90 = -88$	18	-10	$18 + -10 = 8$
3	-60	$3 + -60 = -57$	20	-9	$20 + -9 = 11$
4	-45	$4 + -45 = -41$	30	-6	$30 + -6 = 24$
5	-36	$5 + -36 = -31$	36	-5	$36 + -5 = 31$
6	-30	$6 + -30 = -24$	45	-4	$45 + -4 = 41$
9	-20	$9 + -20 = -11$	60	-3	$60 + -3 = 57$
10	-18	$10 + -18 = -8$	90	-2	$90 + -2 = 88$
12	-15	$12 + -15 = -3$	180	-1	$180 + -1 = 179$

Thursday, February 6, 2014

3rd

Evaluate $3x^2 - 2x + 10$, if $x = \frac{2}{3}$

Thursday, February 6, 2014

3rd

Evaluate $3x^2 - 2x + 10$, if $x = \frac{2}{3}$

Answer: $3x^2 - 2x + 10$

$$3 \left(\frac{2}{3} \right)^2 - 2 \left(\frac{2}{3} \right) + 10$$

$$3 \left(\frac{4}{9} \right) - 2 \left(\frac{2}{3} \right) + 10$$

$$\frac{12}{9} - \frac{4}{3} + 10$$

$$\frac{12}{9} - \frac{12}{9} + 10 = \mathbf{10}$$

Thursday, February 6, 2014 4th

Find the greatest common factor:

$$-14x^3y^3 + 8x^5y + 20x^5$$

Thursday, February 6, 2014

4th

Find the greatest common factor:

$$-14x^3y^3 + 8x^5y + 20x^5$$

Answer:

$$-14x^3y^3 = -1 \cdot 2 \cdot 7 \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y$$

$$8x^5y = 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot y$$

$$20x^5 = 2 \cdot 2 \cdot 5 \cdot x \cdot x \cdot x \cdot x \cdot x$$

$$\text{GCF} = 2x^3$$

Thursday, February 6, 2014

5th

Expand and simplify:

$$(x + 10)(x - 10)$$

Thursday, February 6, 2014

5th

Expand and simplify:

$$(x + 10)(x - 10)$$

Answer:

$$x(x - 10) + 10(x - 10)$$

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

$$**x^2 - 100**$$

Thursday, February 6, 2014 **6th**

Find two integers that multiply to -16
and add to 0.

Thursday, February 6, 2014 6th

Find two integers that multiply to -16 and add to 0.

Answer:

Factor 1	Factor 2	Sum
1	-16	$1 + -16 = -15$
2	-8	$2 + -8 = -6$
4	-4	$4 + -4 = 0$
8	-2	$8 + -2 = 6$
16	-1	$16 + -1 = 15$

Thursday, February 6, 2014

7th

Solve for d :

$$3(3d + 5) - 4(2d - 3) = 11$$

Thursday, February 6, 2014

7th

Solve for d :

$$3(3d + 5) - 4(2d - 3) = 11$$

Answer:

$$3(3d + 5) - 4(2d - 3) = 11$$

$$9d + 15 - 8d + 12 = 11$$

$$d + 27 = 11$$

$$d + 27 - 27 = 11 - 27$$

$$**d = -16**$$

Friday, February 7, 2014

1st

Write an expression for the area of a rectangle whose length is n^3 and whose width is $2n^2$.

Friday, February 7, 2014

1st

Write an expression for the area of a rectangle whose length is n^3 and whose width is $2n^2$.

Answer: Area = length x width

$$\text{Area} = n^3 \cdot 2n^2 = \mathbf{2n^5}$$

Friday, February 7, 2014

2nd

Expand and simplify:

$$6x^2(x - 7) - 3x(x + 9)$$

Friday, February 7, 2014

2nd

Expand and simplify:

$$6x^2(x - 7) - 3x(x + 9)$$

Answer: $6x^2(x - 7) - 3x(x + 9)$

$$6x^3 - 42x^2 - 3x^2 - 27x$$

$$**6x^3 - 45x^2 - 27x**$$

Friday, February 7, 2014

3rd

Find the greatest common factor:

$$30u^3v^6 + 21u^2v^2 + 3u^2v$$

Friday, February 7, 2014

3rd

Find the greatest common factor:

$$30u^3v^6 + 21u^2v^2 + 3u^2v$$

Answer:

$$30u^3v^6 = 2 \cdot 3 \cdot 5 \cdot u \cdot u \cdot u \cdot v \cdot v \cdot v \cdot v \cdot v \cdot v$$

$$21u^2v^2 = 3 \cdot 7 \cdot u \cdot u \cdot v \cdot v$$

$$3u^2v = 3 \cdot u \cdot u \cdot v$$

$$\text{GCF} = 3u^2v$$

Friday, February 7, 2014

4th

Expand and simplify: $(a + 1)(a - 1)$

Friday, February 7, 2014

4th

Expand and simplify: $(a + 1)(a - 1)$

Answer: $(a + 1)(a - 1)$

$$a(a - 1) + 1(a - 1)$$

$$a^2 - a + a - 1$$

$$**a^2 - 1**$$

Friday, February 7, 2014

5th

Find two integers that multiply to -49
and add to 0.

Friday, February 7, 2014

5th

Find two integers that multiply to -49 and add to 0.

Answer:

Factor 1	Factor 2	Sum
1	-49	$1 + -49 = -48$
7	-7	$7 + -7 = 0$
49	-1	$49 + -1 = 48$

Friday, February 7, 2014

6th

Arrange the following values in order from **least to greatest** if $x = -2$:

$$\frac{9}{x} \quad \sqrt{-4x} \quad x + 9 \quad \frac{9x}{3}$$

Friday, February 7, 2014

6th

Arrange the following values in order from **least to greatest** if $x = -2$:

$$\frac{9}{x} \quad \sqrt{-4x} \quad x + 9 \quad \frac{9x}{3}$$

Answer: $\frac{9}{-2} = -4.5$

$$\sqrt{-4(-2)} = \sqrt{8} \approx 2.82$$

$$(-2) + 9 = 7$$

$$\frac{9(-2)}{3} = -6$$

$$-6 < -4.5 < 2.82 < 7$$

$$\frac{9x}{3} < \frac{9}{x} < \sqrt{-4x} < x + 9$$

Friday, February 7, 2014

7th

Simplify:

$$\frac{(x^2 y^{-4})^{-1}}{x^3 y^{-4} \cdot y^3}$$

Friday, February 7, 2014

7th

Simplify:

$$\frac{(x^2 y^{-4})^{-1}}{x^3 y^{-4} \cdot y^3}$$

Answer: $\frac{(x^2 y^{-4})^{-1}}{x^3 y^{-4} \cdot y^3} = \frac{x^{-2} y^4}{x^3 y^{-1}}$

$$\frac{y^4 y}{x^3 x^2} = \frac{y^5}{x^5} \text{ or } \left(\frac{y}{x}\right)^5$$