

Daily Math

Week 20 (2013-2014)

Mon. January 13, 2014

Tues. January 14, 2014

Wed. January 15, 2014

Thurs. January 16, 2014

Fri. January 17, 2014

Monday, January 13, 2014

1st

Given: $f(x) = 2^x$

Find: $f(3)$

Monday, January 13, 2014

1st

Given: $f(x) = 2^x$

Find: $f(3)$

Answer: Substitute 3 for x:

$$2^3 = 8$$

Monday, January 13, 2014

2nd

Given: $f(x) = 3^x$

Find: $f(2)$

Monday, January 13, 2014

2nd

Given: $f(x) = 3^x$

Find: $f(2)$

Answer: Substitute 2 for x:

$$3^2 = 9$$

Monday, January 13, 2014

3rd

Given: $f(x) = 2(x + 1) + 3$

Find: $f(3)$

Monday, January 13, 2014

3rd

Given: $f(x) = 2(x + 1) + 3$

Find: $f(3)$

Answer: Substitute 3 for x:

$$2(3 + 1) + 3$$

$$2(4) + 3 = 11$$

Monday, January 13, 2014

4th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	2	4	8	16	32			

Monday, January 13, 2014

4th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	2	4	8	16	32	64	128	256

Answer: Table shows a common ratio of 2.
(Each term is multiplied by 2 to get the next term).
Thus, the next terms are **64, 128, 256**.

Monday, January 13, 2014

5th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	66	50	34	18				

Monday, January 13, 2014

5th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	66	50	34	18	2	-14	-30	-46

Answer: Table shows a common difference of -16.

Thus, the next terms are **2, -14, -30, -46**.

Monday, January 13, 2014

6th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	-3	9	-27	81				

Monday, January 13, 2014

6th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	-3	9	-27	81	-243	729	-2187	6561

Answer: Table shows a common ratio of -3. Thus, the next terms are **-243**, **729**, **-2187**, **6561**.

Monday, January 13, 2014

7th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	160	80	40	20				

Monday, January 13, 2014

7th

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	160	80	40	20	10	5	2.5	1.25

Answer: Table shows a common ratio of $\frac{1}{2}$. Thus, the next terms are **10, 5, 2.5, 1.25**.

Tuesday, January 14, 2014

1st

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	-9	-2	5	12				

Tuesday, January 14, 2014

1st

Complete the table:

Term	1	2	3	4	5	6	7	8
Value	-9	-2	5	12	19	26	33	40

Answer: Table shows a common difference of 7. Thus, the next terms are **19, 26, 33, 40**.

Tuesday, January 14, 2014

2nd

Complete the table for the equation:

$$y = 4^x$$

x	y
1	
2	
3	
4	
5	

Tuesday, January 14, 2014

2nd

Complete the table for the equation:

$$y = 4^x$$

x	y
1	4
2	16
3	64
4	256
5	1024

Answer: $4^1 = 4$
 $4^2 = 16$
 $4^3 = 64$
 $4^4 = 256$
 $4^5 = 1024$

Tuesday, January 14, 2014

3rd

Complete the table for the equation:

$$y = (-3)^x$$

x	y
1	
2	
3	
4	
5	

Tuesday, January 14, 2014

3rd

Complete the table for the equation:

$$y = (-3)^x$$

x	y
1	-3
2	9
3	-27
4	81
5	-243

Answer: $(-3)^1 = \mathbf{-3}$

$$(-3)^2 = \mathbf{9}$$

$$(-3)^3 = \mathbf{-27}$$

$$(-3)^4 = \mathbf{81}$$

$$(-3)^5 = \mathbf{-243}$$

Tuesday, January 14, 2014

4th

Complete the table for the equation:

$$y = -3^x$$

x	y
1	
2	
3	
4	
5	

Tuesday, January 14, 2014

4th

Complete the table for the equation:

$$y = -3^x$$

x	y
1	-3
2	-9
3	-27
4	-81
5	-243

Answer: $-3^1 = \mathbf{-3}$

$$-3^2 = \mathbf{-9}$$

$$-3^3 = \mathbf{-27}$$

$$-3^4 = \mathbf{-81}$$

$$-3^5 = \mathbf{-243}$$

Tuesday, January 14, 2014

5th

Complete the table for the equation:

$$y = 10^x$$

x	y
1	
2	
3	
4	
5	

Tuesday, January 14, 2014

5th

Complete the table for the equation:

$$y = 10^x$$

x	y
1	10
2	100
3	1000
4	10000
5	100000

Answer: $10^1 = 10$
 $10^2 = 100$
 $10^3 = 1000$
 $10^4 = 10000$
 $10^5 = 100000$

Tuesday, January 14, 2014

6th

Solve this equation for x :

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

Tuesday, January 14, 2014

6th

Solve this equation for x :

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

Answer: $3(x - 1) = 2(x + 3)$

$$3x - 3 = 2x + 6$$

$$3x - 3 + 3 = 2x + 6 + 3$$

$$3x = 2x + 9$$

$$3x - 2x = 2x - 2x + 9$$

$$x = 9$$

Tuesday, January 14, 2014

7th

Solve this equation for x :

$$7(x + 20) = x + 5$$

Tuesday, January 14, 2014

7th

Solve this equation for x :

$$7(x + 20) = x + 5$$

Answer: $7(x + 20) = x + 5$

$$7x + 140 = x + 5$$

$$7x - x + 140 = x - x + 5$$

$$6x + 140 = 5$$

$$6x + 140 - 140 = 5 - 140$$

$$6x = -135$$

$$6x \div 6 = -135 \div 6$$

$$x = -22.5$$

Wednesday, January 15, 2014 1st

Solve this equation for x :

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

Wednesday, January 15, 2014 1st

Solve this equation for x :

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

Answer: $9(x - 2) = 3x + 3$

$$9x - 18 = 3x + 3$$

$$9x - 3x - 18 = 3x - 3x + 3$$

$$6x - 18 = 3$$

$$6x - 18 + 18 = 3 + 18$$

$$6x = 21$$

$$6x \div 6 = 21 \div 6$$

$$x = 3.5$$

Wednesday, January 15, 2014 **2nd**

Solve this equation for x :

$$2 \left(x - \frac{1}{3} \right) = \frac{2}{5} \left(x + \frac{2}{3} \right)$$

Wednesday, January 15, 2014 2nd

Solve this equation for x :

$$2\left(x - \frac{1}{3}\right) = \frac{2}{5}\left(x + \frac{2}{3}\right)$$

Answer:

$$\begin{aligned}2x - \frac{2}{3} &= \frac{2}{5}x + \frac{4}{15} \\ \frac{10}{5}x - \frac{2}{3} &= \frac{2}{5}x + \frac{4}{15} \\ \frac{10}{5}x - \frac{2}{5}x - \frac{2}{3} &= \frac{2}{5}x - \frac{2}{5}x + \frac{4}{15} \\ \frac{8}{5}x - \frac{2}{3} &= \frac{4}{15} \\ \frac{8}{5}x - \frac{2}{3} + \frac{2}{3} &= \frac{4}{15} + \frac{2}{3} \\ \frac{8}{5}x &= \frac{4}{15} + \frac{10}{15} \\ \frac{8}{5}x &= \frac{14}{15} \\ \left(\frac{5}{8}\right)\frac{8}{5}x &= \left(\frac{5}{8}\right)\frac{14}{15} \\ x &= \frac{70}{120} = \frac{7}{12}\end{aligned}$$

Wednesday, January 15, 2014 **3rd**

Solve this equation for x :

$$3(x + 3) - 2(x - 1) = 0$$

Wednesday, January 15, 2014 3rd

Solve this equation for x :

$$3(x + 3) - 2(x - 1) = 0$$

Answer: $3(x + 3) - 2(x - 1) = 0$

$$3x + 9 - 2x + 2 = 0$$

$$x + 11 = 0$$

$$x + 11 - 11 = 0 - 11$$

$$**x = -11**$$

Wednesday, January 15, 2014 4th

Find the slope of the line that contains these points: $(3, 7)$ and $(5, 10)$.

Wednesday, January 15, 2014 4th

Find the slope of the line that contains these points: (3, 7) and (5, 10).

$$\text{Answer: } \textit{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\textit{Slope} = \frac{10 - 7}{5 - 3} = \frac{3}{2}$$

Wednesday, January 15, 2014 5th

Find the slope of the line that contains these points: $(-1, 4)$ and $(3, 3)$.

Wednesday, January 15, 2014 5th

Find the slope of the line that contains these points: (-1, 4) and (3, 3).

$$\text{Answer: } \textit{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\textit{Slope} = \frac{3 - 4}{3 - (-1)} = \frac{-1}{4} = -\frac{1}{4}$$

Wednesday, January 15, 2014 6th

Find the slope of the line that contains these points: $(0, 0)$ and $(-2, 5)$.

Wednesday, January 15, 2014 6th

Find the slope of the line that contains these points: (0, 0) and (-2, 5).

$$\text{Answer: } \textit{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\textit{Slope} = \frac{5 - 0}{-2 - 0} = \frac{5}{-2} = -\frac{5}{2}$$

Wednesday, January 15, 2014 7th

Find the slope of the line that contains these points: $(-1, -5)$ and $(-4, -5)$.

Wednesday, January 15, 2014 7th

Find the slope of the line that contains these points: $(-1, -5)$ and $(-4, -5)$.

$$\text{Answer: } \textit{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\textit{Slope} = \frac{-5 - (-5)}{-4 - (-1)} = \frac{0}{-3} = \mathbf{0}$$

Thursday, January 16, 2014 **1st**

Find the next 3 terms in this sequence and identify the common difference.

3, 8, 13, 18, 23, __, __, __

Common difference = ____

Thursday, January 16, 2014 1st

Find the next 3 terms in this sequence and identify the common difference.

3, 8, 13, 18, 23, __, __, __

Common difference = ____

Answer: Common difference is $8 - 3 = 5$

$23 + 5 = 28$; $28 + 5 = 33$; $33 + 5 = 38$

3, 8, 13, 18, 23, **28**, **33**, **38**

Thursday, January 16, 2014 **2nd**

Find the next 3 terms in this sequence
and identify the common difference.

11, 9, 7, 5, 3, __, __, __

Common difference = ____

Thursday, January 16, 2014 2nd

Find the next 3 terms in this sequence and identify the common difference.

11, 9, 7, 5, 3, __, __, __

Common difference = ____

Answer:

Common difference is $9 - 11 = -2$

$3 + (-2) = 1$; $1 + (-2) = -1$; $-1 + (-2) = -3$

11, 9, 7, 5, 3, **1, -1, -3**

Thursday, January 16, 2014 3rd

Find the next 3 terms in this sequence and identify the common difference.

3, 1.5, 0, -1.5, -3, __, __, __

Common difference = ____

Thursday, January 16, 2014

3rd

Find the next 3 terms in this sequence and identify the common difference.

3, 1.5, 0, -1.5, -3, __, __, __

Common difference = ____

Answer:

Common difference is $1.5 - 3 = -1.5$

$$-3 + (-1.5) = -4.5;$$

$$-4.5 + (-1.5) = -6;$$

$$-6 + (-1.5) = -7.5$$

3, 1.5, 0, -1.5, -3, **-4.5, -6, -7.5**

Thursday, January 16, 2014 4th

Find the missing terms in the sequence and state the common difference:

5, 11, _____, 23, 29, _____

Common difference = _____

Thursday, January 16, 2014 4th

Find the missing terms in the sequence and state the common difference:

5, 11, _____, 23, 29, _____

Common difference = _____

Answer:

Common difference = $11 - 5 = 6$

So... 5, 11, **17**, 23, 29, **35**

Thursday, January 16, 2014 5th

Find the missing terms in the sequence and state the common difference:

7, 3, -1, _____, _____, -13

Common difference = _____

Thursday, January 16, 2014 5th

Find the missing terms in the sequence and state the common difference:

7, 3, -1, _____, _____, -13

Common difference = _____

Answer:

Common difference = $3 - 7 = -4$

7, 3, -1, **-5**, **-9**, -13

Thursday, January 16, 2014 6th

Find the missing terms in the sequence and state the common difference:

8, _____, _____, 47, 60

Common difference = _____

Thursday, January 16, 2014

6th

Find the missing terms in the sequence and state the common difference:

8, _____, _____, 47, 60

Common difference = _____

Answer:

Common difference = $60 - 47 = 13$

8, **21**, **34**, 47, 60

Thursday, January 16, 2014 7th

Find the missing terms in the sequence and state the common difference:

$$0, \underline{\quad}, \underline{\quad}, 2, \frac{8}{3}$$

Common difference =

Thursday, January 16, 2014

7th

Find the missing terms in the sequence and state the common difference:

$$0, \underline{\quad}, \underline{\quad}, 2, \frac{8}{3}$$

$$\text{Common difference} = \underline{\quad}$$

Answer:

$$\text{Common difference} = \frac{8}{3} - 2 = \frac{2}{3}$$

$$0, \frac{2}{3}, \frac{4}{3}, 2, \frac{8}{3}$$

Friday, January 17, 2014

1st

Given: $f(n) = 5^n$

Find: $f(2)$

Friday, January 17, 2014

1st

Given: $f(n) = 5^n$

Find: $f(2)$

Answer: $f(n) = 5^n$

Let $n = 2$, $5^2 = 25$

Friday, January 17, 2014

2nd

Given: $f(n) = (-2)^n$

Find: $f(3)$

Friday, January 17, 2014

2nd

Given: $f(n) = (-2)^n$

Find: $f(3)$

Answer: $f(n) = (-2)^n$

Let $n = 3$, $(-2)^3 = -8$

Friday, January 17, 2014

3rd

Given: $f(n) = 3 + 4(n - 1)$

Find: $f(5) + f(6)$

Friday, January 17, 2014

3rd

Given: $f(n) = 3 + 4(n - 1)$

Find: $f(5) + f(6)$

Answer: $f(n) = 3 + 4(n - 1)$

$$f(5) = 3 + 4(5 - 1) = 19$$

$$f(6) = 3 + 4(6 - 1) = 23$$

$$f(5) + f(6) = 19 + 23 = \mathbf{42}$$

Friday, January 17, 2014

4th

Given: $f(n) = 2(n - 1) + 6$

Find: $f(1) + f(2)$

Friday, January 17, 2014

4th

Given: $f(n) = 2(n - 1) + 6$

Find: $f(1) + f(2)$

Answer: $f(n) = 2(n - 1) + 6$

$$f(1) = 2(1 - 1) + 6 = 6$$

$$f(2) = 2(2 - 1) + 6 = 8$$

$$f(1) + f(2) = 6 + 8 = \mathbf{14}$$

Friday, January 17, 2014

5th

Complete the table:

x	y
1	-2
2	-4
3	-6
4	
5	

Friday, January 17, 2014

5th

Complete the table:

x	y
1	-2
2	-4
3	-6
4	-8
5	-10

Answer:

Common difference = -2

$$-6 + (-2) = \mathbf{-8}$$

$$-8 + (-2) = \mathbf{-10}$$

Friday, January 17, 2014

6th

Complete the table:

x	y
1	3
2	9
3	27
4	
5	

Friday, January 17, 2014

6th

Complete the table:

x	y
1	3
2	9
3	27
4	81
5	243

Answer:

Common ratio = $9/3 = 3$

$$27 \cdot 3 = \mathbf{81}$$

$$81 \cdot 3 = \mathbf{243}$$

Friday, January 17, 2014

7th

Complete the table:

x	y
1	27
2	9
3	3
4	
5	

Friday, January 17, 2014

7th

Complete the table:

x	y
1	27
2	9
3	3
4	1
5	$\frac{1}{3}$

Answer:

Common ratio: $\frac{9}{27} = \frac{1}{3}$

$$3 \cdot \frac{1}{3} = \mathbf{1}$$

$$1 \cdot \frac{1}{3} = \mathbf{\frac{1}{3}}$$