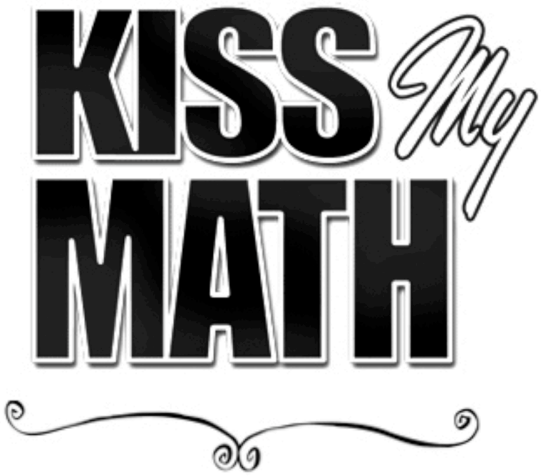

Solution Guide for Chapter 17

Here are the solutions for the "Doing the Math" exercises in *Kiss My Math*!

DTM from p.271-2

2. $f(x) = 2x - 2$

Okay, let's start plugging in values!

$f(\mathbf{-6}) = 2(\mathbf{-6}) - 2 = -12 - 2 = -12 + (-2) = -14$, so $\underline{\boldsymbol{f(-6) = -14}}$

$f(\mathbf{-3}) = 2(\mathbf{-3}) - 2 = -6 - 2 = -6 + (-2) = -8$, so $\underline{\boldsymbol{f(-3) = -8}}$

$f(\mathbf{0}) = 2(\mathbf{0}) - 2 = 0 - 2 = -2$, so $\underline{\boldsymbol{f(0) = -2}}$

$f(\mathbf{3}) = 2(\mathbf{3}) - 2 = 6 - 2 = 4$, so $\underline{\boldsymbol{f(3) = 4}}$

$f(\mathbf{9}) = 2(\mathbf{9}) - 2 = 18 - 2 = 16$, so $\underline{\boldsymbol{f(9) = 16}}$

Now we can arrange our answers in tables..

Answer:

$x \to f(x)$	$(x, f(x))$
$-6 \to -14$	$(-6, -14)$
$-3 \to -8$	$(-3, -8)$
$0 \to -2$	$(0, -2)$
$3 \to 4$	$(3, 4)$
$9 \to 16$	$(9, 16)$

3. $f(x) = \dfrac{2x}{3} - 3$

Okay, let's start plugging in values!

$f(\mathbf{-6}) = \dfrac{2(\mathbf{-6})}{3} - 3 = \dfrac{-12}{3} - 3 = -4 - 3 = -4 + (-3) = -7$, so $\underline{\boldsymbol{f(-6) = -7}}$

$f(\mathbf{-3}) = \dfrac{2(\mathbf{-3})}{3} - 3 = \dfrac{-6}{3} - 3 = -2 - 3 = -2 + (-3) = -5$, so $\underline{\boldsymbol{f(-3) = -5}}$

$f(\mathbf{0}) = \dfrac{2(\mathbf{0})}{3} - 3 = 0 - 3 = -3$, so $\underline{\boldsymbol{f(0) = -3}}$

$f(\mathbf{3}) = \dfrac{2(\mathbf{3})}{3} - 3 = \dfrac{6}{3} - 3 = 2 - 3 = 2 + (-3) = -1$, so $\underline{\boldsymbol{f(3) = -1}}$

$f(\mathbf{9}) = \dfrac{2(\mathbf{9})}{3} - 3 = \dfrac{18}{3} - 3 = 6 - 3 = 3$, so $\underline{\boldsymbol{f(9) = 3}}$

Now we can arrange our answers in tables! Answer:

$x \to f(x)$	$(x, f(x))$
$-6 \to -7$	$(-6, -7)$
$-3 \to -5$	$(-3, -5)$
$0 \to -3$	$(0, -3)$
$3 \to -1$	$(3, -1)$
$9 \to 3$	$(9, 3)$

4. $f(x) = x^2 - x$

Okay, let's start plugging in values, *wherever* we see x!

$f(\mathbf{-6}) = (\mathbf{-6})^2 - (\mathbf{-6}) = 36 + 6 = 42$, so ***f*(–6) = 42**

$f(\mathbf{-3}) = (\mathbf{-3})^2 - (\mathbf{-3}) = 9 + 3 = 12$, so ***f*(–3) = 12**

$f(\mathbf{0}) = (\mathbf{0})^2 - (\mathbf{0}) = 0$, so ***f*(0) = 0**

$f(\mathbf{3}) = (\mathbf{3})^2 - (\mathbf{3}) = 9 - 3 = 6$, so ***f*(3) = 6**

$f(\mathbf{9}) = (\mathbf{9})^2 - (\mathbf{9}) = 81 - 9 = 72$, so ***f*(9) = 72**

Now we can arrange our answers in tables!

Answer:

$x \to f(x)$	$(x, f(x))$
$-6 \to 42$	$(-6, 42)$
$-3 \to 12$	$(-3, 12)$
$0 \to 0$	$(0, 0)$
$3 \to 6$	$(3, 6)$
$9 \to 72$	$(9, 72)$

DTM from p.273-4

For each function, evaluate "*y*" when $x = -4, -1, 0$, and 3. Write out the "whispering" parentheses along the way, to keep track of the (ingredient, sausage) pairs.

2. $y = x + 1$

For $x = \mathbf{-4}$, we get: $y = (\mathbf{-4}) + 1 \rightarrow y = -3$ Alright, for our first whispering parentheses, we got: **(–4, –3)**.

For $x = \mathbf{-1}$, we get: $y = (\mathbf{-1}) + 1 \rightarrow y = 0$, so our next pair is **(–1, 0).**

For $x = \mathbf{0}$, we get: $y = (\mathbf{0}) + 1 \rightarrow y = 1$. Next whispering pair! **(0, 1)**

For $x = \mathbf{3}$, we get: $y = (\mathbf{3}) + 1 \rightarrow y = 4$. Our final ingredient/sausage pair is **(3, 4).**

Arranging them into tables, we get our answer!

Answer:

Ingredient → Sausage

x → y	(x, y)
-4 → -3	(-4, -3)
-1 → 0	(-1, 0)
0 → 1	(0, 1)
3 → 4	(3, 4)

3. $y = 6 - x$

For $x = \mathbf{-4}$, we get: $y = 6 - (\mathbf{-4}) \rightarrow y = 6 + 4 \rightarrow y = 10$. Alright, for our first whispering parentheses, we got: **(–4, 10)**.

For $x = \mathbf{-1}$, we get: $y = 6 - (\mathbf{-1}) \rightarrow y = 6 + 1 \rightarrow y = 7$, so our next pair is **(–1, 7).**

For $x = \mathbf{0}$, we get: $y = 6 - (\mathbf{0}) \rightarrow y = 6$. Next whispering pair! **(0, 6)**

For $x = \mathbf{3}$, we get: $y = 6 - (\mathbf{3}) \rightarrow y = 3$. Our final ingredient/sausage pair is **(3, 3).**

Arranging them into tables, we get our answer!

Answer:

Ingredient → Sausage

X → y	(x, y)
-4 → 10	(-4, 10)
-1 → 7	(-1, 7)
0 → 6	(0, 6)
3 → 3	(3, 3)

4. $y = 4x - 5$

For $x = \mathbf{-4}$, we get: $y = 4(\mathbf{-4}) - 5 \rightarrow -16 - 5 \rightarrow -16 + (-5) \rightarrow y = -21$ Alright, for our first whispering parentheses, we got: **(–4, –21)**.

For $x = \mathbf{-1}$, we get: : $y = 4(\mathbf{-1}) - 5 \rightarrow -4 - 5 \rightarrow -4 + (-5) \rightarrow y = -9$, so our next pair is **(–1, –9).**

For $x = \mathbf{0}$, we get: $y = 4(\mathbf{0}) - 5 \rightarrow y = -5$. Next whispering pair! **(0, –5)**

For $x = \mathbf{3}$, we get: $y = 4(\mathbf{3}) - 5 \rightarrow y = 12 - 5 \rightarrow y = 7$. Our final ingredient/sausage pair is **(3, 7).**

Arranging them into tables, we get our answer!

Answer:

Ingredient → Sausage

x → y	(x, y)
-4 → -21	(-4, -21)
-1 → -9	(-1, -9)
0 → -5	(0, -5)
3 → 7	(3, 7)