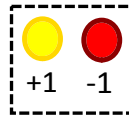
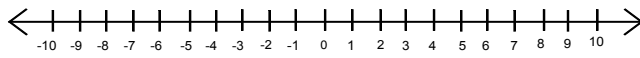
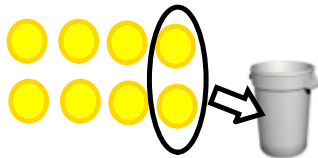


## Grade 7 Math: Quiz Practice Answer Key



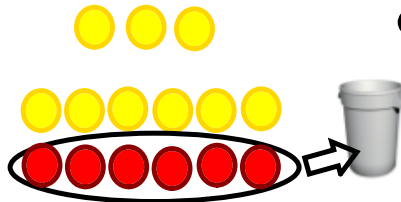
1. Use tiles to subtract. Draw pictures of the tiles you used.

a)  $(+8) - (+2) = (+6)$



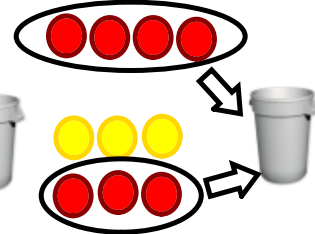
Start with 8 positive tiles, circle and throw away 2 positive tiles

b)  $(+3) - (-6) = (+9)$



Start with 3 positive tiles. You can't take away 6 negative tiles at first, so add zero pairs until you have enough. Then, circle and throw away 6 negative tiles. You're left with 9 positive tiles.

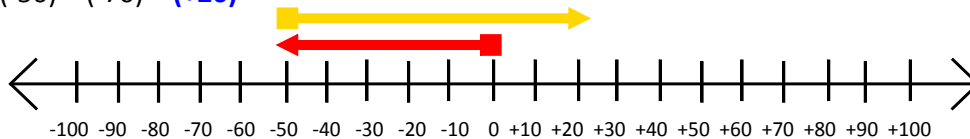
c)  $(-4) - (-7) = (+3)$



Start with 4 negative tiles. You can't take away 7 negative tiles at first, so add zero pairs until you have enough. Then, circle and throw away 7 negative tiles. You're left with 3 positive tiles.

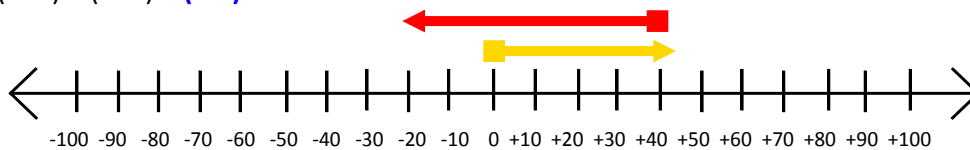
2. Use a number line to subtract.

a)  $(-50) - (-70) = (+20)$



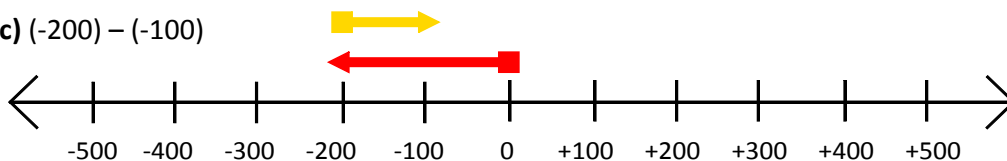
Start with your benchmark of 0. The first integer is -50, so draw a line from 0 to -50 (this line is red as it's going in the negative direction). From your new benchmark, subtract (go in the opposite direction of) -70. -70 wants to go in the negative direction by 70, so instead go in the positive direction by 70. Draw a yellow line from -50 to +20.

b)  $(+40) - (+60) = (-20)$



Start with your benchmark of 0. The first integer is +40, so draw a line from 0 to +40 (this line is yellow as it's going in the positive direction). From your new benchmark, subtract (go in the opposite direction of) +60. +60 wants to go in the positive direction by 60, so instead go in the negative direction by 60. Draw a red line from +40 to -20.

c)  $(-200) - (-100)$



Start with your benchmark of 0. The first integer is -200, so draw a line from 0 to -200 (this line is red as it's going in the negative direction). From your new benchmark, subtract (go in the opposite direction of) -100. -100 wants to go in the negative direction by 100, so instead go in the positive direction by 100. Draw a yellow line from -200 to -100.

3. Subtract any way you want and write down your answer.

a)  $(+4) - (+9) = (-5)$       b)  $(+18) - (-6) = (+24)$       c)  $(-9) - (+3) = (-12)$

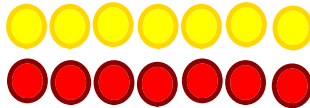
Subtracting an integer is like adding its opposite integer

a)  $(+4) - (+9)$  becomes  $(+4) + (-9) = (-5)$   
b)  $(+18) - (-6)$  becomes  $(+18) + (+6) = (+24)$   
c)  $(-9) - (+3)$  becomes  $(-9) + (-3) = (-12)$

You can also use integer tiles or number lines if you wish.

4. Show using integer tiles what happens when you add two opposite integers.

Choose two opposite integers, such as  $(+7)$  and  $(-7)$ . Add them using integer tiles.



Every yellow tile is matched with a red tile, giving you "zero pairs". In this example there are 7 zero pairs.

Therefore, the sum of two opposite integers is zero.

5. Imagine you had a negative integer subtract a negative integer. Will the answer be always positive, always negative, or will it depend on the integers that are chosen? Support your answer with an example.

Read the question carefully - you want a negative integer subtract a negative integer.

Try some examples.

Remember, subtracting an integer is like adding its opposite integer

$(-2) - (-5)$  becomes  $(-2) + (+5) = (+3)$       *This answer is positive*

So the answer cannot always be negative (since our first example had an answer that was positive). Let's try to find an example that does give a negative integer.

$(-4) - (-3)$  becomes  $(-4) + (+3) = (-1)$       *This answer is negative*

Since I could find an example with an answer that was negative, I know the answer must depend on the integers chosen.

Notice that I always took a negative integer subtract a negative integer.

6. Mr. Mattatall was learning a new dance to impress his wife the next time they went dancing. The steps included "Two steps to the right, \*clap your hands\*, four steps to the left, \*stomp your feet.\*"

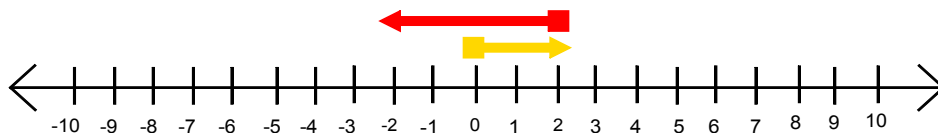
Write an addition and subtraction equation to describe how far Mr. Mattatall moved. Assume that right is positive and left is negative.

- The first instruction is "Two steps to the right". Since right is positive, this can be represented as  $(+2)$ .
- You don't move when clapping, so ignore this instruction.
- The next instruction is "Four steps to the left". Since left is negative, this can be represented as  $(-4)$ .
- You don't move when stomping, so ignore this instruction.

**Addition equation:**  $(+2) + (-4) = (-2)$

*Adding a -4 is the same as subtracting a +4, therefore:*

**Subtraction equation:**  $(+2) - (+4) = (-2)$



**Use a number line to help you visualize what is happening.**

7. Write an addition and subtraction equation for each of the following questions, and solve them:

- a) The temperature was  $-2^{\circ}\text{C}$  this morning. It will rise by  $8^{\circ}\text{C}$  by this afternoon.

**Addition equation:**  $(-2^{\circ}\text{C}) + (+8^{\circ}\text{C}) = (+6^{\circ}\text{C})$

**Subtraction equation:**  $(-2^{\circ}\text{C}) - (-8^{\circ}\text{C}) = (+6^{\circ}\text{C})$

- b) Mr. Turner will receive \$1000 on his tax return this year. He wants to use the money to install floors in his new house. New floors will cost him \$1250.

**Addition equation:**  $(+\$1000) + (-\$1250) = (-\$250)$

**Subtraction equation:**  $(+\$1000) - (+\$1250) = (-\$250)$

8. Make up a word problem that describes each equation

a)  $(-5) + (+7) = 2$

**One possible example:**

*It was  $-5^{\circ}\text{C}$  this morning. The temperature rose by  $7^{\circ}\text{C}$  this afternoon. The temperature at the end of the day was  $2^{\circ}\text{C}$ .*

Note that whenever you see a number without a + or - sign, it is considered to be a positive number.

As well, while brackets help you keep track of + and - signs, sometimes they may be omitted, like in these questions. For clarity, you should use them all the time.

b)  $400 + (-250) = +150$

**One possible example:**

*I was mountain climbing one day. At first I climbed 400m above sea level up the mountain, but I couldn't find a good campsite. I climbed back down 250m and pitched my tent. I was then at 150m above sea level.*

c)  $(-10) - (-5) = (-5)$

**One possible example:**

*I owed my friend \$10. My parents found \$5 in my jeans pocket when doing my laundry. I gave my friend the five dollar bill, but I still owe her \$5.*