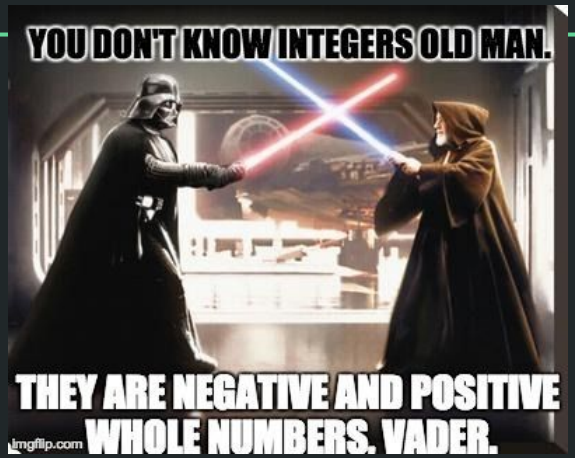
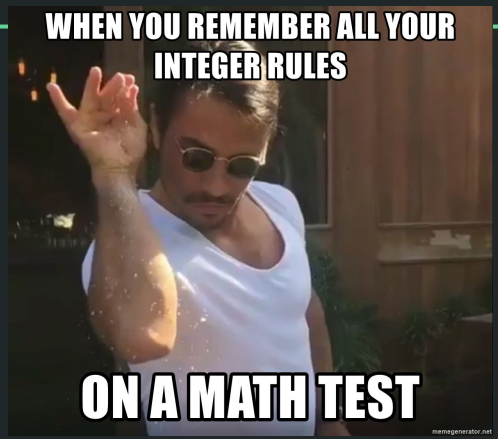
Unit 7 Integers





Adding Integers Symbolically

Remember!

When adding integers;

1. The sum of any integer and its opposite is equal to zero.
2. Adding two positive integers always yields a positive sum
3. Adding two negative integers always yields a negative sum
4. Adding two integers of different signs could be positive or negative depending on the higher value.

Adding Integers

a) (-17) + (+12) =

b) (+55) + (-23) =

c) (-13) + (-15) =

d) (-15) + (37) =

Subtracting Integers

1) Any time you see a positive and a negative together you can change the two signs to a negative.

2) Any time you see two negatives together you can change the two signs to a positive.

Subtracting Integers

a) 15- (-15) =

b) (-2) - (-23) =

c) (-13) - (7)) =

d) (-15) - (20) =

Calculate (–2) – (+3) + (+10

Calculate (+10) + (–4) + (–6) + (+10).

The temperature dropped 3 degrees from midnight to noon. Then it rose 9 degrees from noon to 10:00 P.M. It is now –12°C. What was the temperature at midnight?

Agnes is doing a project for a science fair. She is recording the rise and fall of the water level in a pond. One day, the pond level was 20 cm below the normal level. The next time Agnes measured the water level, it had risen by 60 cm. What was the new reading?

The elevation of the top of Mt. Everest is 8848 m above sea level. The elevation of the Dead Sea is 411 m below sea level. Calculate and explain the difference between these elevations.

The bus leaves Wilson with people aboard. At the first stop seven people get off. At the second stop eight people get on. At the next stop five get off and 17 get on. When the bus arrives at its final stop there are 24 people on the bus. How many were on the bus when it left Wilson?

The table shows changes in the number of subscribers to a community newsletter over a six-month period. There were 207 subscribers at the beginning of this period. How many were there at the end?

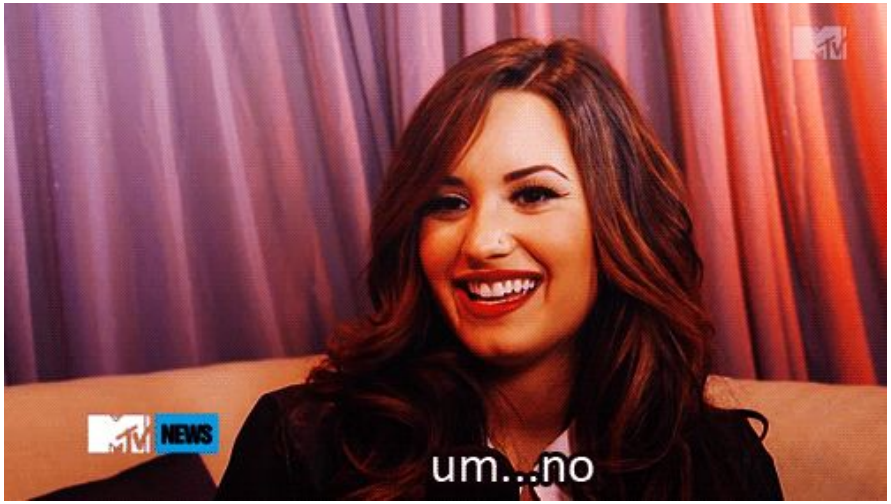
Month	Change in subscribers
1	+8
2	+6
3	-12
4	+5
5	-9
6	-10

Review!

a) What can be done when subtracting a negative number?

b) If two negative numbers are added will the sum be positive or negative?

c) What is the sum when the same integer of opposite signs is added?



Multiplying and Dividing Integers

When multiplying and dividing integers the same rules apply to both operations.

1) If the integers have the same sign the result will be positive

2) If the integers have opposite signs the result will be negative.

Examples

a) -3 x 4

b) 4(-25)

c) -8 x -2

d) 10(-5)

Examples

a) $-45 \div (-5)$

b) $-16 \div 8$

c) $-56 \div 7$

d) $-81 \div (-9)$

Write an equivalent statement using multiplication

a) $-72 \div (-9)$

b) $84 \div 7$

c) $66 \div (-11)$

d) $-124 \div (-12)$

Remember!

To solve a one-step equation we must get the variable alone by performing opposite operations on the constants on the same side, for example;

J-13 = 20

Determine the missing integer in each equation

a) $-72(x) = -800$

b) $-132 \div (x) = -11$

c) $25x = 2500$

d) $-192 \div x = 24$

The sum of two integers is 23 less than the product. What are the two integers?

Review!

a) What is the product of two negative numbers?

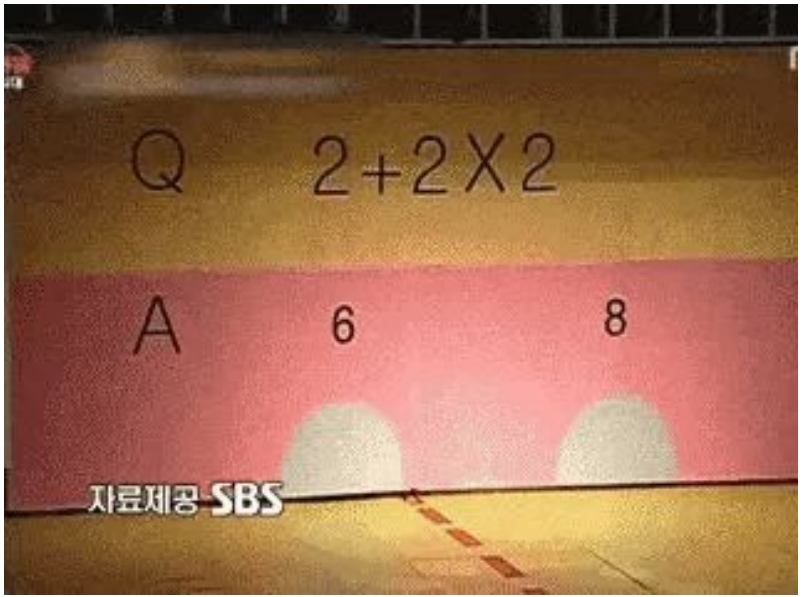
b) What is the quotient of one negative and one positive number?

c) What is BEDMAS?

Remember!

BEDMAS is an acronym to help remember an order of operations in algebra basics.

BEDMAS stands for brackets, exponents, division, multiplication, addition and subtraction.



Examples

a) $(7 + 3) \div 2 \times 3^2$

b) $42 \div 2^2 - 8 \div 2$

Examples

c) -4+3(2+5)-2

d) -8(6) ÷(-2)-[-9(-3)]

$$\frac{\left[8\times\left(-2\right)-7\right]-10\div(-5)}{-3-4}$$

The average temperature of Earth’s surface is about 15 °C. The temperature of Earth’s crust increases by about 25 °C for each kilometre below the surface. What is the average temperature 3 km below Earth’s surface?

Practice!

Pages 249-250 Questions #3, 6, 8, 14

Pages 265-267 Questions # 5, 8, 10, 15

Pages 271-273 Questions #3, 4, 6, 8, 11, 12

Pages 280 and 282 all questions