Math 8 Chapter 2 Reference Sheet.

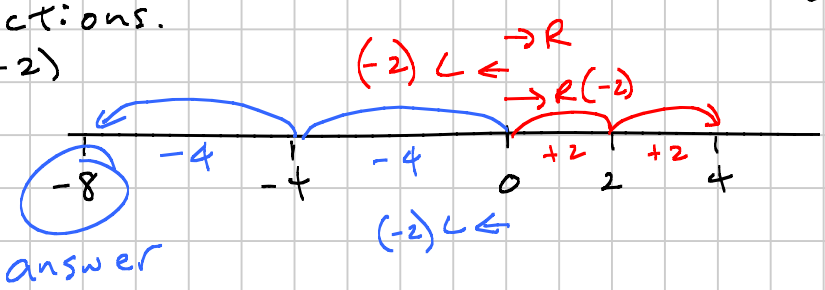
Note Title 2014-07-17

Models:

Number Line: Start by facing right. For every negative sign, switch directions.

eg) $(-2)\times(-2)\times(-2)$

4



Tiles: use Cartesians coordinates; 1st coord is x, 2nd coord is y. Q-I & Q-III are positive, Q-II & Q-IV are negative. eg) $2\times(-3)$

Yellow is positive.
Red is negative.

answer is -6.

Count Negative Signs: The answer is positive if the number of negative signs is even. The answer is negative if the number of negative signs is odd.

$-2\times(-4)\times 3$ 2 (even) neg signs, so ans is pos.

Zero Property (same as whole numbers): $0\times a = a\times 0 = 0$

Multiplicative Identity (same as W): $1\times a = a\times 1 = a$

Commutative Property (same as W): $a\times b = b\times a$

Distributive Property (same as W): $a(b+c) = ab+ac$

product is the answer to multiplication

Negative sign are handled the same way for division.

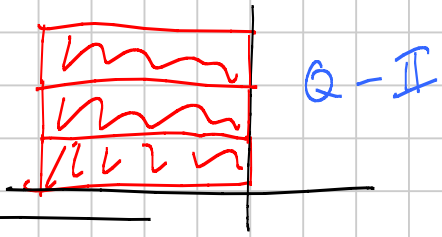
Number Line: If arrows point towards zero, quotient is negative. If arrows point away from zero, quotient is positive.

Tiles. Yellow is positive, Red is negative.
Draw groups of divisor (x) until you get the dividend. Your answer is (y).

$\frac{\text{dividend}}{\text{divisor}}$ = quotient

eg) $12 \div -4 = -3$

eg) $-12 \div -4 = 3$



Division Identity (same as whole numbers): $a \div 1 = \frac{a}{1} = a$

Negating Property: $a \div (-1) = \frac{a}{-1} = -a$

Zero Property: $0 \div a = \frac{0}{a} = 0$, $a \neq 0$

Order of Operations
- Brackets
- Exponents
- Division } same order
- Multiplication
- Addition } same order
- Subtraction.

The difference from before is that negative integers need brackets. This doesn't get treated as the highest order. It reminds you of the negative.
What to do when there are lots of brackets? Use square brackets, but make sure they match up.
If only multiplies and divides, convert to fraction form and simplify.

Word Problems: A common division problem involves averages. This is the total (may require adding) divided by the number of units. Average ≡ mean.
The answer to adding some numbers is called the sum or total.