2.1.1. OPERATIONS WITH INTEGERS.

Note Title 9/15/2022

MULTIPLYING & DIVIDING INTEGERS

ex) $3(-2)$

$3 \times (-2)$

$3 \cdot (-2)$

} SAME; "3 SETS OF -2"

$(-2) + (-2) + (-2)$

$= -6$

ex) $(-5)(-4)$ MEANS "THE OPPOSITE OF 5 SETS OF -4"

OF $(-4) + (-4) + (-4) + (-4) + (-4)$

OPPOSITE OF (-20)

$= +20$

SHORTCUT:

(1) MULTIPLE #s

(2) DECIDE ON THE SIGN: IF THE SIGNS ARE THE SAME, THE ANSWER IS (+)

IF THE SIGNS ARE DIFFERENT, THE ANSWER IS (−)

NOTE: IF MULTIPLYING MORE THAN 2 INTEGERS &

YOU HAVE AN EVEN NUMBER OF NEGATIVE SIGNS, THE ANSWER IS (+)

IF ODD, THE ANSWER IS (−)

** SAME RULES FOR ÷

ex) $(-4)(-12) = +48$

ex) $(3)(7) = 21$

ex) $(-5)(+14) = -70$

$$\begin{array}{r} 2 \\ 14 \\ \times\ 5 \\ \hline 70 \end{array}$$

DIVISION:

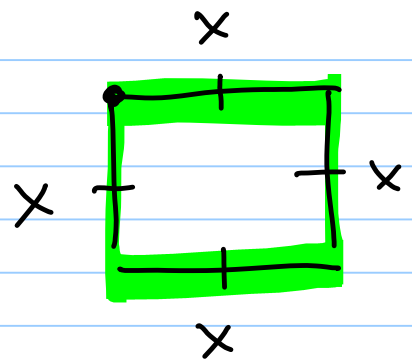
ex) $\frac{-144}{12} = -12$

ex) $\frac{132}{-11} = -12$

ex) $\frac{-48}{-6} = +8$

WITH VARIABLES

+/−

① 

Perimeter (still length)

$P = x + x + x + x$

$= 4x$

length

VARIABLE DOESN'T CHANGE

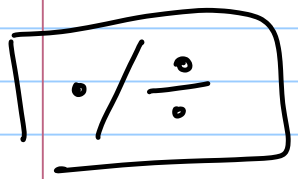
② 3p + 2p = 5p ← still plums

p = Plum

③ $-4g - (-5g)$

$-4g + 5g = +1g$

"down 4 games & then win 5 games for overall total of up 1 game."



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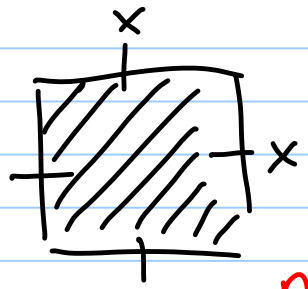

$A = x \cdot x$

$= x^2$

AREA IS NOT length. SOMETHING NEW.

NOTE $A_{\square} = l \cdot w$

② $(-4g)(-5g) = +20g^{2} = 20g^{2}$

- find answer's sign
- mult. #s
- mult. variables

} 3 STEPS

③ $$\frac{-36x^{5}y^{2}}{4x^{3}y} = \frac{-36 \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x \cdot x \cdot \cancel{y} \cdot y}{4 \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{y}}$$

$$= -9x^{2}y$$

EXERCISES 2.1.1. #1-8, 16, 17 NOVICE

#1-18 APPRENTICE/EXPERT