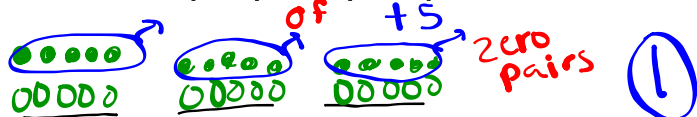




Warm Up Grade 8

Sept. 19, 2016

Model  $(-3) \times (+5) = (-15)$  ①



$=$  00000 00000 00000 ①

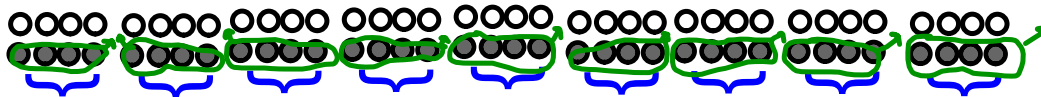
Key Words "find total change" means to multiply  
 GIVEN total change then means to ~~multiply~~ divide

Use the box method to find  $(-31) \times (-26) = (+806)$

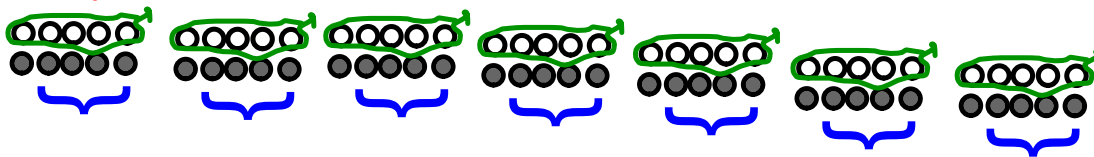
|        |                        |                      |
|--------|------------------------|----------------------|
|        | $(-30)$                | $(-1)$               |
| $-20$  | $(-20)(-30)$<br>$+600$ | $(-20)(-1)$<br>$+20$ |
| $(-6)$ | $(-6)(-30)$<br>$+180$  | $(-6)(-1)$<br>$+6$   |

$$\begin{array}{r}
 +600 \\
 +180 \\
 +20 \\
 \quad 6 \\
 \hline
 +806
 \end{array}$$

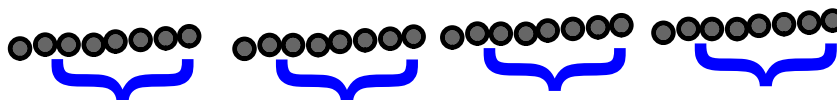
1a) 😊 (-9) x (+4) = (- 36)  
 take away 9 groups of positive 4  
 zero pairs needed



1b) 😊 (-7) x (-5) = (+ 35)  
 take away 7 groups of negative 5  
 zero pairs needed



1c) 😊 (+4) x (+8) = (+ 32)  
 Put down 4 groups of positive 8



1d) 😊 (+3) x (-5) = (-15)  
 Put down 3 groups of negative 5



- 😊2) Glacier retreated 4m per day for 7 days.

$$(-4) \times (+7) = (-28)$$

The glacier retreated ~~14~~ <sup>-28</sup> m in total.

Key Words "find total change" means to multiply

GIVEN total change then means to multiply

- 😊3) Temp rose 4°C each hour for 5 hours

$$(+4) \times (+5) = (+20)$$

The total temperature change is a rise of 20°C.

4) & 5)

- a)  $(-8) \times (+5) = (-40)$   
 b)  $(-5) \times (-3) = (+15)$   
 c)  $(+12) \times (-4) = (-48)$   
 d)  $(+8) \times (+9) = (+72)$

6) 😊a)  $(-20) \times (+14)$

$$\begin{aligned} &\text{Rethink } (20) \times (14) \\ &= (20) \times (10 + 4) \\ &= (20 \times 10) + (20 \times 4) \\ &= 200 + 80 \\ &= 280 \end{aligned}$$

put sign in

$$(-20) \times (+14) = (-280)$$

😊b)  $(-19) \times (-24)$

$$\begin{aligned} &\text{Rethink } (19) \times (24) \\ &= (10+9) \times (20 + 4) \\ &= (10 \times 20) + (10 \times 4) + (9 \times 20) + (9 \times 4) \\ &= 200 + 40 + 180 + 36 \\ &= 456 \end{aligned}$$

put sign in

$$(-19) \times (-24) = (+456)$$

😊c)  $(+40) \times (+27)$

$$\begin{aligned} &\text{Rethink } (40) \times (27) \\ &= (40) \times (20 + 7) \\ &= (40 \times 20) + (40 \times 7) \\ &= 800 + 280 \\ &= 1080 \end{aligned}$$

put sign in

$$(+40) \times (+27) = (+1080)$$

😊d)  $(+13) \times (-31)$

$$\begin{aligned} &\text{Rethink } (13) \times (31) \\ &= (10+3) \times (30 + 1) \\ &= (10 \times 30) + (10 \times 1) + (3 \times 30) + (3 \times 1) \\ &= 300 + 10 + 90 + 3 \\ &= 403 \end{aligned}$$

put sign in

$$(+13) \times (-31) = (-403)$$

## Page 83 homework solutions

😊7) Pool drains 35L per minute. Find how much water drained out of the pool in 30 min.

$$(-35) \times (+30) =$$

Rethink

$$(35) \times (30)$$

$$= (30 + 5) \times (30)$$

$$= (30 \times 30) + (5 \times 30)$$

$$= 900 + 150$$

$$= 1050$$

$$(-35) \times (+30) = -1050$$

Lost a total of 1050 L

😊8a)  $(+4) \times (-8) = -32$

😊8b)  $(-9) \times (-6) = +54$

😊8c)  $(-8) \times (+7) = -56$

😊8d)  $(-12) \times (-1) = +12$

😊9a)  $(+9) \times (+3) = +27$

9b)  $(-2) \times (-7) = +14$

9c)  $(+7) \times (-3) = -21$

9d)  $(-13) \times (+2) = -26$

😊1) Water level dropped 5 cm per hour. The total drop was 30 cm. How long did this take?

$$(-30) \div (-5) = +6$$

It took 6 hours for the water level to drop a total of 30 cm.

12)  $(-18) \div (+3)$

The total debt to the librarian by 3 students was \$18. If each person owed the same amount then how much did each student owe?

### Rules for Division

$$(-) \div (-) = (+)$$

$$(+) \div (+) = (+)$$

$$(-) \div (+) = (-)$$

$$(+) \div (-) = (-)$$

Same as the  
multiplication rules

Fill in the blanks

1)  $(\underline{-9}) \times (-8) = (+72)$

2)  $(-28) \div (\underline{+4}) = (-7)$

3)  $(+60) \div (\underline{-5}) = (-12)$

$\rightarrow (+12) \div (-8)$

$\rightarrow (-7) \times +4 = -28$

Division can be written...

$$\frac{(-100)}{(+25)}$$

$$= (-100) \div (+25)$$

$$= -4$$

## Class/Homework

### Page 87-88

|                |             |
|----------------|-------------|
| #4,            | #11(a,b),   |
| #5(a,c,e,g,i), | #12(a,b),   |
| #8(a,d),       | #15(a,b,d), |
| #9(a,c),       | #16         |
| #10(a,b,c,d),  |             |

Need more??

## Class/Homework 80

Page 81

#12 & #13

Page 83

#1 to #12 leave out #10

Quiz Tomorrow (Friday)

on multiplication modelling & rules

Division Rules



