

Grade 8 Warm Up
Unit 2 Integers (Day 2)



1) Write the multiplication expression for each repeated addition

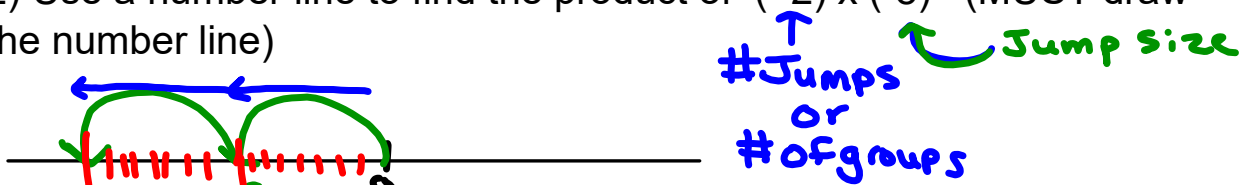
a) $(-2) + (-2) + (-2) + (-2) + (-2) + (-2) + (-2)$

$(+7) \times (-2)$

b) $(+7) + (+7) + (+7)$

$(+3) \times (+7)$
 ↑ # groups ↻ repeated

2) Use a number line to find the product of $(+2) \times (-8)$ (MUST draw the number line)



$(+2) \times (-8) = -16$

Tiles

2 groups of -8

$\begin{array}{c} \circ \circ \circ \circ \\ \circ \circ \circ \circ \end{array} \quad \begin{array}{c} \circ \circ \circ \circ \\ \circ \circ \circ \circ \end{array} \Rightarrow -16$

3) Model $(+3) \times (-5)$ with tiles

putdown of (-5) ↻ unshaded
 3 groups

$\begin{array}{c} \circ \circ \circ \circ \circ \\ \circ \circ \circ \circ \circ \\ \circ \circ \circ \circ \circ \end{array}$

$-(-15)$

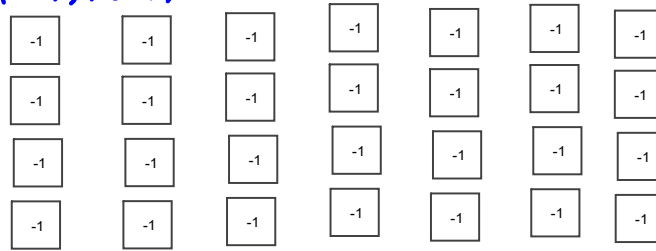
Page 68-69 #5, #6, #7, #8,

5a) $(-1) + (-1) + (-1)$
 $3 \times (-1) = -3$

b) $(-2) + (-2) + (-2) + (-2) + (-2)$
 $5 \times (-2) = -10$

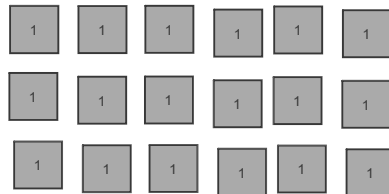
c) $(+1) + (+1) + (+1) + (+1)$
 $4 \times (+1) = +4$

6. a) $(+7) \times (-4)$
 $(-4) + (-4) + (-4) + (-4) + (-4) + (-4) + (-4)$



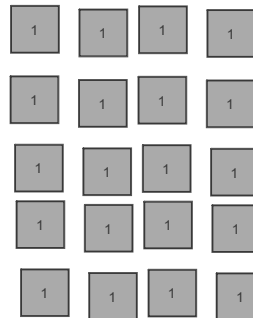
$= -28$

b) $(+6) \times (+3)$
 $(+6) + (+6) + (+6)$

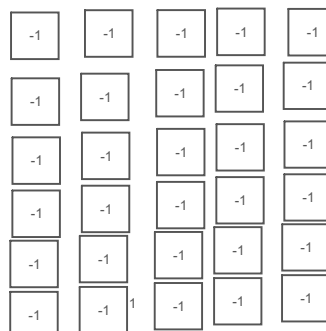


$= +18$

c) $(+4) \times (+6)$
 $= +24$



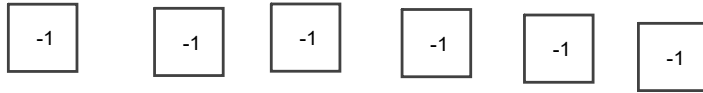
d) $(+5) \times (-6)$
 -30



$$7a) 3 \times (+3) = +9$$

$$b) 4 \times (-2) = -8$$

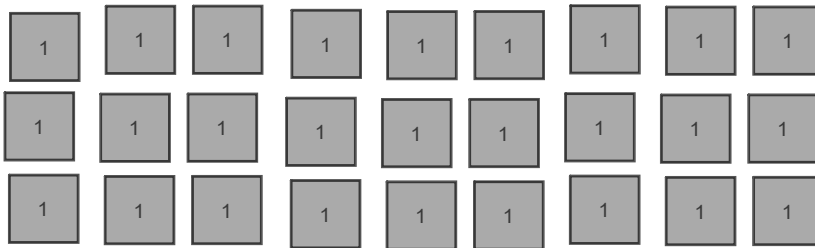
$$8a) (+6) \times (-1)$$



-6

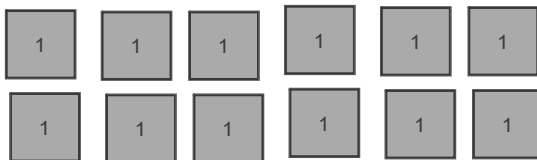


$$b) (+3) \times (+9)$$



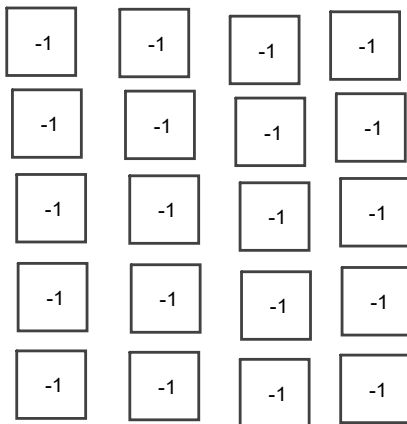
= +27

$$c) (+2) \times (+6)$$



= +12

$$d) (+4) + (-5)$$



= -20

From Last Math Class

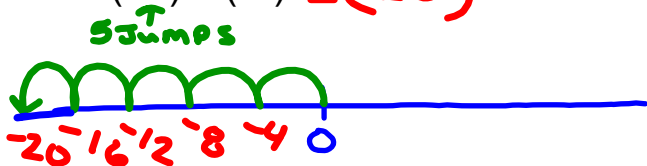


Multiplying Integers with Number lines and tiles

First integer's sign indicates whether you lay down tiles or take tiles away

1) Use Number Line

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



2) Use tiles

$$(+2) \times (-6) = -12$$

↓
2 groups of -6



3) Use tiles

$$(-3) \times (+4)$$



take away
3 groups of 3
of +4

(Can't so need zero pairs)



Commutative Law

$$(+4) \times (-3)$$

↓
Put down 4 groups of -3



$$(-3) \times (+4) = (-12)$$

From Last Math Class (continued)



Multiplying Integers with tiles

$$(-2) \times (-4)$$

↓
remove 2 groups of (-4)

⇒ ——— ———

⇒ ○○○○ ○○○○

⇒ ●●●● ●●●●

$$(-2) \times (-4) = -8$$

Can't remove any
Need zero pairs



Class/Homework

Page 68 - 69

#9(a,b,c,d),

#10(a,b,c,d),

#11(a,c,e),

#12,

#13,

~~#14,~~

~~#17(a,b),~~

#20(a)

positive

up
earn
gain
deposit

ascend

yellow ^{+ext}

negative

down
spend
lose
withdraw

descend

red ^{+ext}

9) a) deposit 5 groups of 2 red
 $(+5) \times (-2)$
 $= (-10)$

b) deposit 5 groups of 2 yellow
 $(+5) \times (+2)$
 $= (+10)$

$$(-7) \times (-3)$$

need zero pairs

remove 7 groups of -3



⇒ Always redraw answer



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

Page 68-69 #5, #6, #7, #8, #9(a,b,c,d), #10(a,b,c,d), #11(a,c,e), #12, #13, #14, #17(a,b), #20(a)



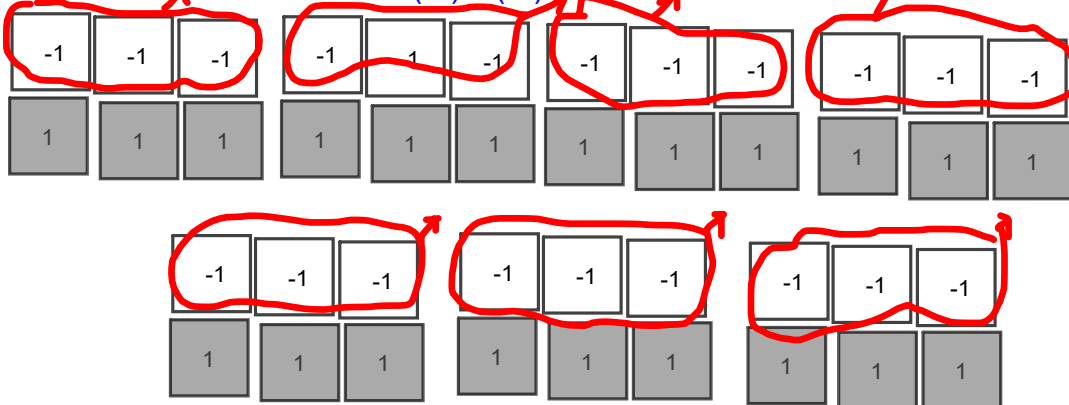
9a) 5 sets of 2 red tiles $(+5) \times (-2)$



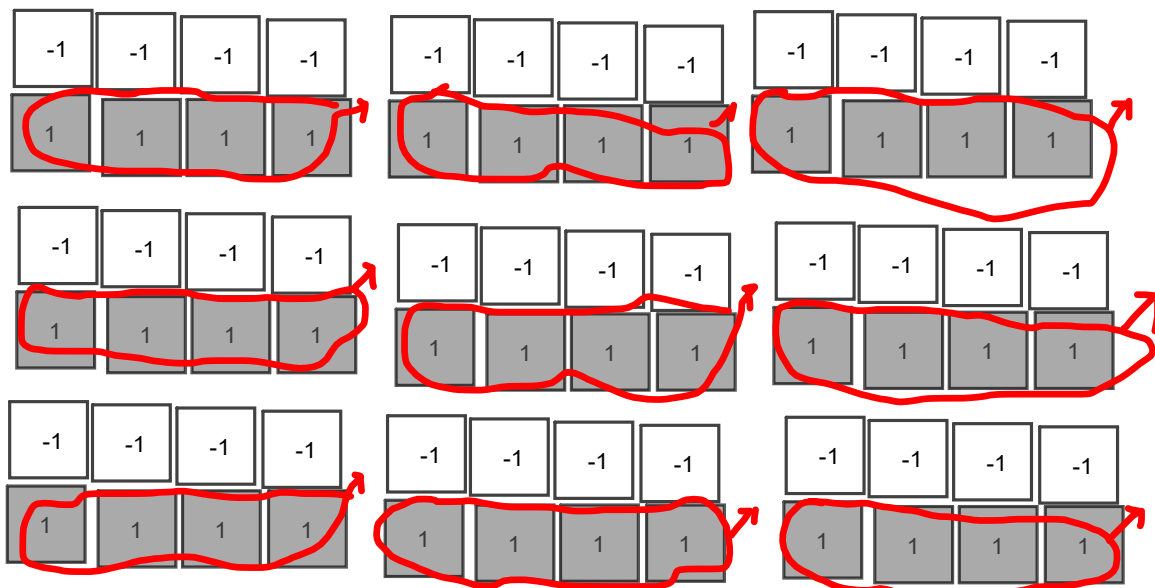
9b) Deposits 5 sets of 2 yellow tiles $(+5) \times (+2)$



9c) Withdraw 7 sets of 3 red tiles $(-7) \times (-3)$



9d) Withdraw 9 sets of 4 yellow tiles $(-9) \times (+4)$

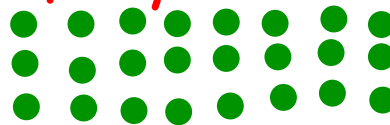


Page 68-69 #5, #6, #7, #8, #9(a,b,c,d), #10(a,b,c,d), #11(a,c,e), #12, #13, #14, #17(a,b), #20(a)

10 a) $(+1) \times (+5) = +5$



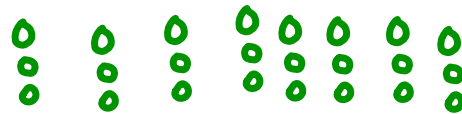
b) $(+8) \times (+3) = +24$



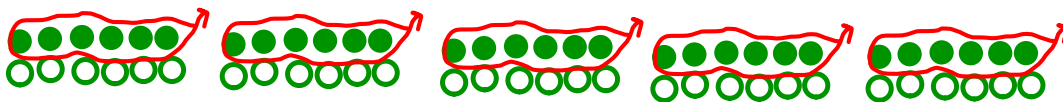
c) $(+1) \times (-2) = -14$



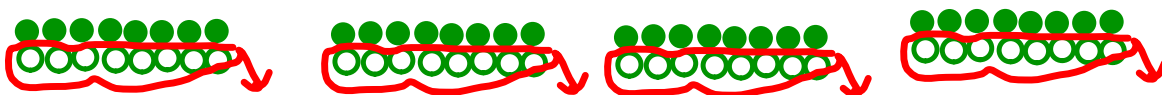
d) $(+8) \times (-3) = -24$



e) $(-5) \times (+6) = -30$



A) $(-4) \times (-8) = +32$



Page 68-69 #5, #6, #7, #8, #9(a,b,c,d), #10(a,b,c,d), #11(a,c,e), #12, #13, #14a, #17(a,b), #20(a)

12) $(+2) \times (+9) = (+18)$ It rose a total of 18°

13) $(-3) \times (+11) = (-33)$ It drained 33 cm in 11 hours



14) Ted spend \$6 a day for 8 days. How much did he spend?



$$(+8) \times (-6) = (-48)$$

17a) $(-5) \times (+8) = (-40)$ He will have \$40 less


17b) $(+5) \times (+2) = (+10)$ He had \$10 more

20a) $(+3) \times (-2) \times (+4)$


 $=$  $\times (+4)$

$=$ 



$$= (-24)$$



When you multiply two positive integers, you simply multiply the numbers and your answer will always be positive.

$$(+7) \times (+5) = +35$$

$$(+12) \times (+10) = +120$$



When you multiply a positive integer and a negative integer, you multiply the numbers, and your answer will always be negative.

$$(+6) \times (-3) = -18$$

$$(+9) \times (-4) = -36$$

$$(-8) \times (+6) = -48$$

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

Multiplying Two Negative Integers Using Modeling

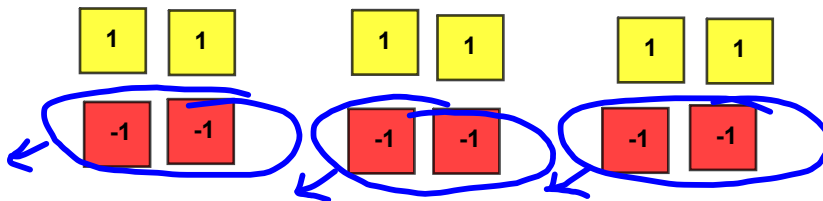
We just said, $(+2) \times (-4)$ means 2 sets of -4, but we always start with zero, so what are we doing with the 2 sets of -4?

If $(+2) \times (-4)$ means to put down 2 sets of -4, what does $(-2) \times (-4)$ mean?

It means to take away 2 groups of -4

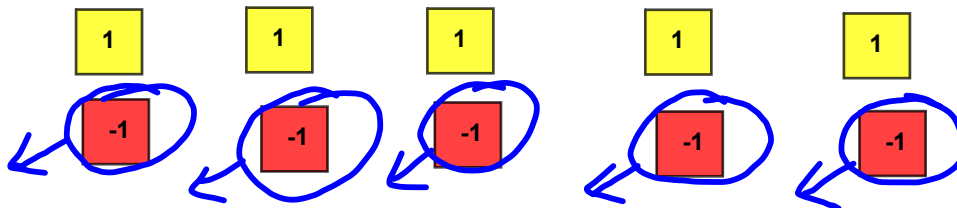
So $(-2) \times (-4) = +8$

What about $(-3) \times (-2)$? It means take away 3 groups of -2.



So $(-3) \times (-2) = +6$

Now try $(-5) \times (-1)$



$(-5) \times (-1) = +5$

So when you multiply two negative integers, multiply the numbers and your answer will always be positive.

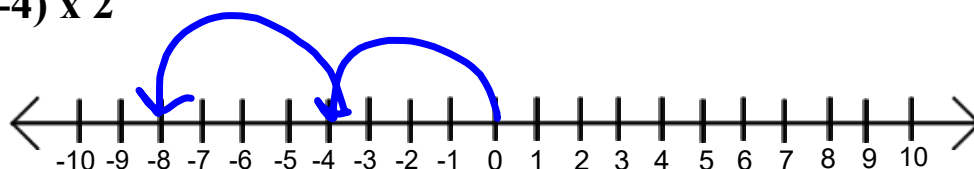
If done on day 2, discuss using number lines



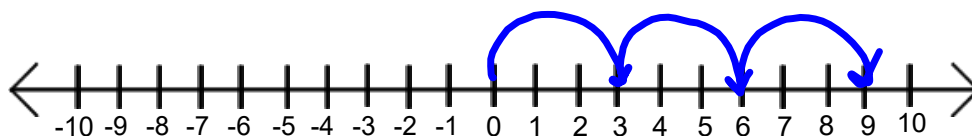
Multiplying Integers using number lines

Always
start
at zero

(a) $(-4) \times 2 = -8$



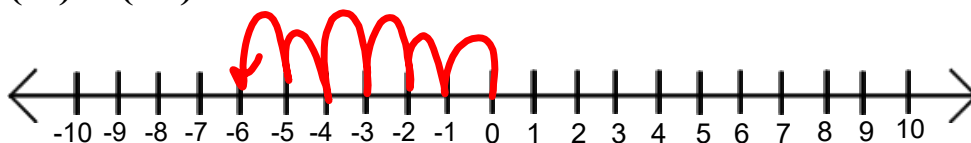
(b) $(3) \times (+3) = +9$



(c) $(5) \times (-2) = -10$



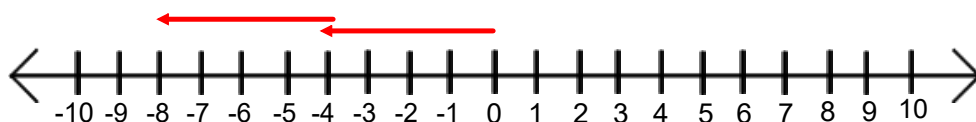
(d) $(-1) \times (+6) = -6$



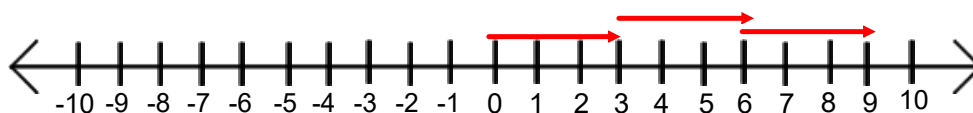
Multiplying Integers using number lines

start at zero

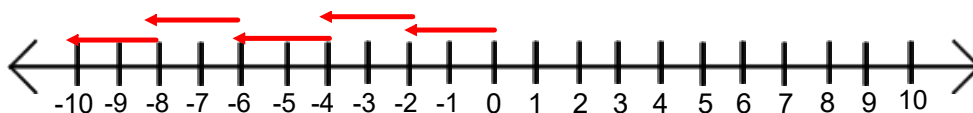
(a) $(-4) \times 2 = -8$



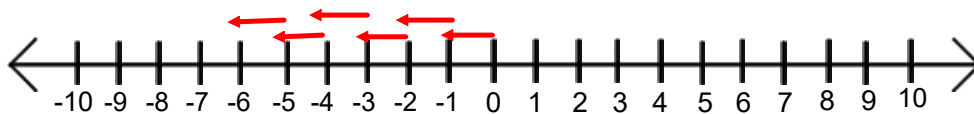
(b) $(3) \times (+3) = +9$



(c) $(5) \times (-2) =$



(d) $(-1) \times (+6) =$



Homework pg. 68 # 11-20

Page 68-69 #5, #6, #7, #8, #9(a,b,c,d), #10(a,b,c,d),
#11(a,c,e), #12, #13, #14, #17(a,b), #20(a)

Oct 7 HW

Finish HW from supply teacher if you did not get it done

Pg 68 10) e,f

11) e,f

