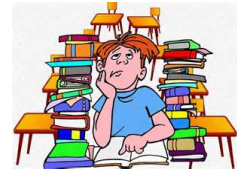


Warm Up Grade 8

Grade 7 Review of Adding Integers



Note on division:  $(+15) \div (+3) = (+5)$   
 Dividend      Divisor      Quotient



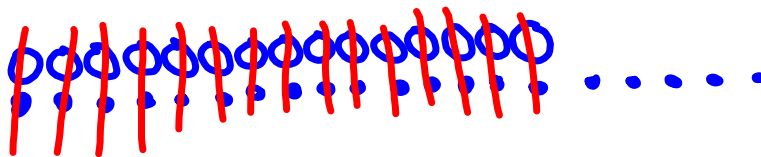
Represent the following with a addition statement of integers, then find the sum:

a) Karen lost \$15 but found \$20

always show work

$$(-15) + (+20) = (+5)$$

↓  
unshaded



Page 87-88 #4, #5(a,c,e,g,i), #8(a,d), #9(a,c), #10(a,b,c,d), #11(a,b), #12(a,b), #15(a,b,d), #16

#4)a) -9    b) +2    c) -12    d) +5

**Homework**  
**Solutions**

5) a)  $(+12) \div (+4) = (+3)$

c)  $(-18) \div (+9) = (-2)$

e)  $(+72) \div (-8) = (-9)$

g)  $(-14) \div (+1) = (-14)$

h)  $(-27) \div (-3) = (+9)$

Page 87-88 #4, #5(a,c,e,g,i), #8(a,d), #9(a,c), #10(a,b,c,d), #11(a,b), #12(a,b), #15(a,b,d), #16

pg 88

$$8. (-6) \times (+5) = -30$$

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

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

Homework  
Solutions

$$b) (+7) \times (+6) = +42$$

$$+42 \div +6 = +7$$

$$+42 \div (+7) = +6$$

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

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

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

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

$$+32 \div (-4) = -8$$

$$+32 \div (-8) = -4$$

$$9. a) \frac{-20}{-5} = +4$$

$$b) \frac{+21}{-7} = -3$$

$$c) \frac{-36}{+4} = -9$$

$$d) \frac{0}{-8} = 0$$

Page 87-88 #4, #5(a,c,e,g,i), #8(a,d), #9(a,c), #10(a,b,c,d), #11(a,b), #12(a,b), #15(a,b,d), #16

$$10. a) +25 \div \underline{+5} = +5$$

$$b) \underline{-90} \div (-9) = +10$$

$$c) (-63) \div \underline{+9} = -7$$

$$d) \underline{-21} \div -3 = +7$$

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

$$f) \underline{+49} \div (-7) = -7$$

$$g) \underline{-48} \div -6 = +8$$

$$h) \underline{+44} \div (-4) = -11$$

Homework  
Solutions

$$11. -56 \div (-7) = +8$$

She borrowed money for 8 days

$$12. (-15) \div (+5) = -3$$

The temp. dropped  $3^\circ$  each hour.

$$13. (-132) \div (+12) = -11$$

Her balance dropped \$11 each week.

$$14. (-24) \div (-6) = +4$$

She lost 6 points on each of the 4 performances.

15a)  $+1, -3, +9, -27, \underline{+81}, \underline{-243}, \underline{+729}$

# Part gets bigger

multiply

$\times -3$

Sign changing (opposite)

$$\begin{array}{r} 27 \\ \times 3 \\ \hline 81 \end{array}$$

$$\begin{array}{r} 81 \\ \times 3 \\ \hline 243 \end{array}$$

$$\begin{array}{r} 243 \\ \times 3 \\ \hline 729 \end{array}$$

Page 87-88 #4, #5(a,c,e,g,i), #8(a,d), #9(a,c), #10(a,b,c,d), #11(a,b), #12(a,b), #15(a,b,d), #16

16. Suppose you divide two integers. The quotient is an integer.
- When is the quotient:

Homework

Solutions

- (a) less than both integers

$$(1+8) \div (1+4) = +2 \text{ - but not always true}$$


---


$$(1+8) \div (1-2) = -4$$

$$(1+36) \div (1-3) = -12$$

When you divide a pos. by a neg with both it depends on the factors.

- (b) greater than both integers

When you divide a negative by a negative. Ex  $(-10) \div (-5) = +2$

- (c) between the two integers

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

$$(-20) \div (+2) = -10$$

When you divide a negative by a positive  $(6) \div (2) = 3$

- (d) equal to +1

When you divide the same integer by itself. Ex  $(-24) \div (-24) = +1$

- (e) equal to -1

- When you divide opposite integers  $(+5) \div (-5) = -1$

- (f) equal to 0

- When 0 is divided by the integer

$$\text{Ex } 0 \div (+5) = 0, \quad 0 \div (-8) = 0$$

## Rules From Grade 7 Integer Unit

## Unit 2: Integers



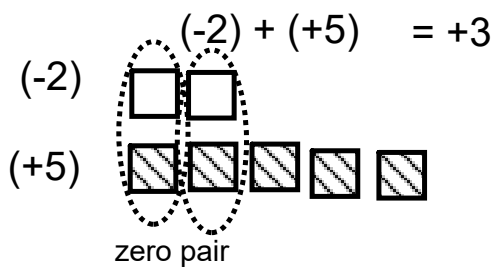
-1



+1

Adding with tiles

-When you add integers you represent each integer in the addition statement. (Remove zero pairs and state answer)

Adding with Number lines

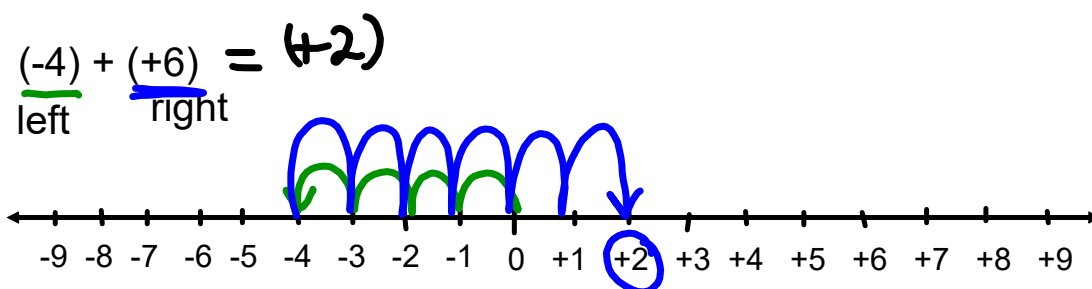
- Always start at zero
- Count the bumps in the road for the first integer

Move to the right  $\Rightarrow$  if positive

Move to the left  $\Leftarrow$  if negative

- When adding the second integer we count the bumps on the road in the direction given from where we ended with the first integer.

-Where you end up is the answer.



Modeling Integer Addition



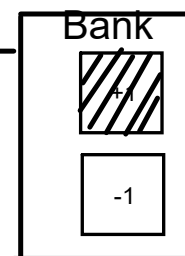
$$(+4) + (+2) = (+6)$$



$$(-3) + (-3) = (-6)$$



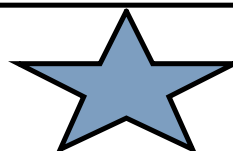
$$(-2) + (-5) = (-7)$$



$$(+4) + (-3) = (+1)$$



$$(-8) + (+4) = (-4)$$



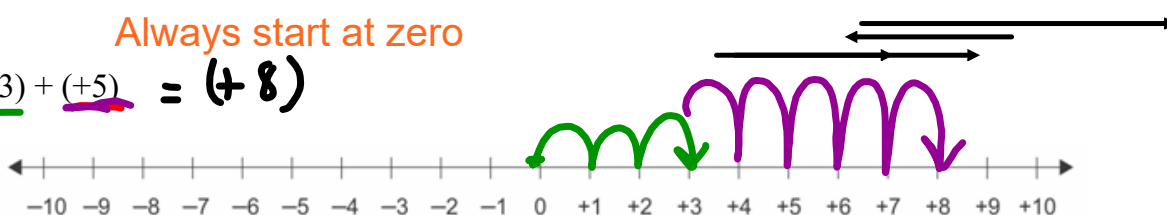


## Modelling Integer Addition using Number Lines

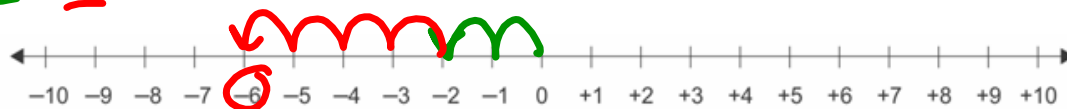
We have modelled integer addition using algebra tiles, now we will add using number lines. Remember with number lines positive is to the right and negative is to the left.

Always start at zero

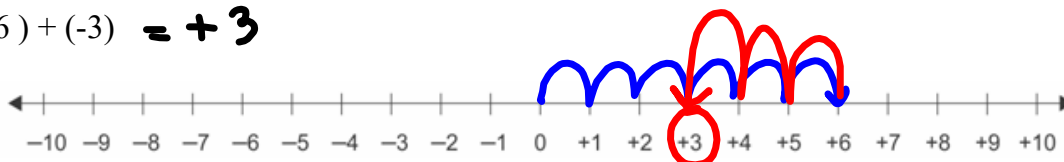
$$(a) \ (+3) + (+5) = (+8)$$



$$(b) \ (-2) + (-4) = (-6)$$



$$(c) \ (+6) + (-3) = +3$$



$$(d) \ (-4) + (+8) = (+4)$$



$$(e) \ (-7) + (+5) = (-2)$$



## Adding with Rules

-When we add two integers with the same signs:

Ex) 1

$$(-3) + (-7) = -10$$

both signs (-)

Thinking  
3+7 = 10  
both signs (-)  
so answer is -10

Ex) 2

$$(+4) + (+8) = +12$$

both signs (+)

Thinking  
4+8 = 12  
So answer is +12

Both signs the same then just add both numbers together, ignoring the sign, and the answer has to have the same sign as the original integers

-When we add two integers with the different signs:

Step 1) Cover up the signs and ask yourself which number is larger.

The answer will have the sign of the bigger number

Step 2) Since they are different, ignore the sign and find the difference between the two numbers (Big minus small). That is your number for the answer

$$(-12) + (+3) = -9$$

Different signs

step 1) When you cover up the signs, we have 12 & 3.  
12 is Larger so our answer will have the sign on 12 which is (-)

step 2)  $12 - 3 = 9$

$$\text{Ex) } (+2) + (-7) = -5$$

Different signs

Step 1) between 2 & 7, 7 is bigger so the sign on 7 goes with the answer (-)

Step 2)  $7 - 2 = 5$

Add the following using the rules.

$$(a) \text{(+12)} + (-9) = \boxed{+3}$$

$$(b) (-8) + (-3) = \boxed{-11}$$

$$(c) (-15) + (-6) = \boxed{-21}$$

$$(d) (+14) + (-4) = \boxed{+10}$$

$$(e) \text{(+6)} + (-12) = \boxed{-6}$$

$$(f) (-25) + (+16) = \boxed{-9}$$

$$(g) (-17) + (-7) = \boxed{-24}$$

$$(h) (+30) + (-21) = \boxed{+9}$$

$$(i) (-8) + (+12) = \boxed{+4}$$

$$(j) \text{(+6)} + (+8) = \boxed{+14}$$

$$(k) (-16) + (+14) = \boxed{-2}$$

$$(l) (+20) + (-7) = \boxed{+13}$$

### Rules for Adding Integers

**When you add two positive integers,  
add the numbers and your answer will be positive.**

**Ex.  $(+6) + (+8) = +14$        $(+11) + (+9) = +20$**

**When you add two negative integers,  
add the numbers and your answer will always be negative.**

**Ex.  $(-5) + (-7) = -12$        $(-8) + (-10) = -18$**

**When you add a positive integer and a negative integer,  
subtract the numbers, and keep the sign of the larger number.**

**Ex.  $(-6) + (+8) = +2$        $(+4) + (-9) = -5$   
 $(+9) + (-12) = -3$        $(-15) + (+20) = +5$**



Tiles 1a, b Rest Rules  
#29c #line Rest Rules  
#3, 4, 5, 6  
Rules

Worksheet 235

Adding Integer Review

Which Number is larger? (Use <, >, =)

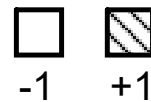
$$(-199) \square (-1)$$

Word problems

Represent the following as addition using integers

Bill owed his mom \$15 and then borrowed another \$5. What is his sum?

The temperature is  $15^{\circ}\text{C}$  at lunch then drops  $4^{\circ}$ . What is the new temperature?



Subtracting with tiles

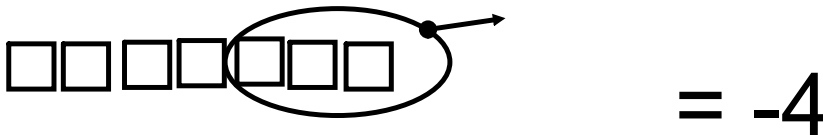
- Always model the first integer

- Remove second integer

\*if there are not enough to remove then add zero pairs of tiles and it does not change the question

Ex1)  $(-7) - (-3)$

Start with 7 negative tiles, then ask yourself if you can remove 3 negative tiles. YES  
 To show removing, circle and point arrow away



What is left over is the answer.

Ex2)  $(-5) - (+2)$

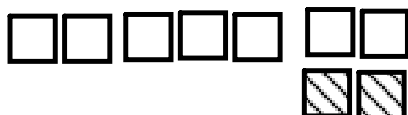
Step 1) Start with 5 negative tiles, then ask yourself if you can remove 2 positive tiles. NO

To show removing, circle and point arrow away

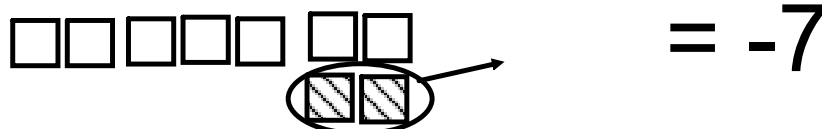


Step 2)

Need to add zero pairs ( two positive and 2 negative)



Step 3) Now remove 2 positive tiles



## Subtracting Rule

- Keep the sign on the first integer and "ADD the OPPOSITE"

Keep sign the same on the first integer  
change the subtraction to addition and  
change the sign on the second integer.  
**THEN USE ADDITION RULES**

Ex 1)  $(+9) - (-5)$

$(+9) + (+5)$  ← must show this step

now addition rule

$(+9) + (-5) = +4$



## Attachments

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Grade 8 Math SHEET 235.docx