

$$\text{a} = +1$$

$$\text{o} = -1$$

## WARM UP GRADE 8

### Grade 7 Review



1) Model the following using tiles

a) <sup>Top</sup>  $(-7) + (-2) = (-9)$     b) <sup>Bottom</sup>  $(+4) + (-6) = (-2)$

$\begin{array}{cccccccc} \text{oo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} \\ \text{oo} & & & & & & & \end{array}$ 
     
  $\begin{array}{cccccc} \text{ooo} & \text{ooo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} \\ \text{ooo} & \text{ooo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} \\ \text{ooo} & \text{ooo} & \text{oo} & \text{oo} & \text{oo} & \text{oo} \end{array}$

2) Use rules to answer the following:

a)  $(-15) + (+13) = (-2)$     b)  $(+32) + (+5) = (+37)$     c)  $(+16) + (-27) = (-11)$

d)  $(+45) + (-21) = (+24)$     e)  $(-15) + (-20) = (-35)$     f)  $(-100) + (+14) = (-86)$

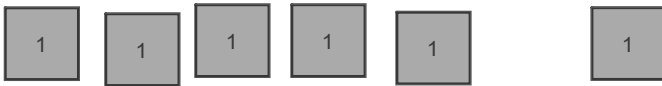
3) Represent the following as an addition statement:

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

$$(+15) + (-4) = (+11)$$

The new temp is  $11^{\circ}\text{C}$ .

1a)  $(+5) + (+1)$



$= +6$

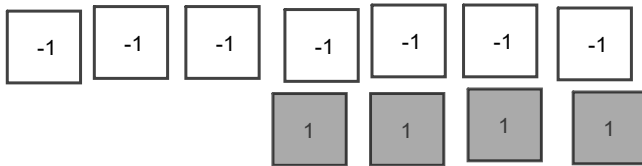
b)  $(-1) + (+8)$



$= +7$

c)  $0 + (-5) = -5$

d)  $(-7) + (+4)$



$= -3$

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



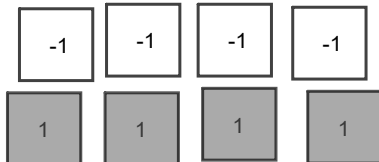
$= -4$

f)  $(-6) + (-5)$



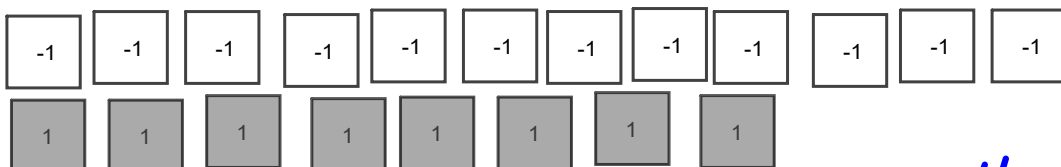
$= -11$

g)  $(+4) + (-4)$



$= 0$

h)  $(-12) + (+8)$



$= -4$

2 a)  $(+6) + (-4)$



$= +2$

b)  $0 + (-2)$



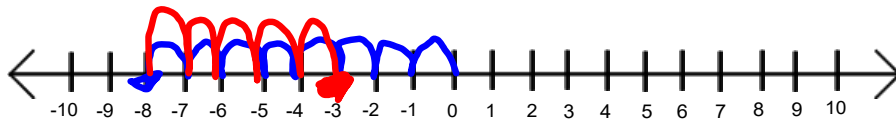
$= -2$

c)  $(-3) + (-7)$



$= -10$

d)  $(-8) + (+5)$



$= -3$

e)  $(-9) + (+9)$



f)  $(+12) + (-6) = +6$        $(+12) + (+6) = +18$



$= +6$

g)  $(-14) + (-1) = -15$

h)  $(+3) + (-14) = -11$

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

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

$$c) (+3) + (-2) = +1$$

$$d) (-5) + (+2) = -3$$

$$e) (+2) + (-1) = +1$$

$$f) +6 + (-6) = 0$$

$$4a) (+2) + (+3) = +5$$

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

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

$$d) (+8) + (-1) = +7$$

$$e) (-10) + (-6) = -16$$

$$f) (+4) + (-13) = -9$$

$$5) a) (-4) + (+7) = +3$$

$$b) (0) + (-6) = -6$$

$$6 \text{ a) } (+7) + (-5) + (+6) \\ (+2) + (+6) = +8$$

$$b) (-9) + (+2) + (-3) \\ -7 + (-3) = -10$$

$$c) (+1) + (-6) + (+4) + (-7) \\ (+5) + (-13) = -8$$

$$d) (-3) + (+5) + (-1) + (+8) \\ (+2) + (-1) + (+8) \\ (+1) + (+9) \\ +9$$

$$e) (+12) + (-9) + (+11) + (-20) \\ \text{or } (+23) + (-29)$$

$$-6$$

$$f) (-13) + (+25) + (-5) + (-17) \\ (+12) + (-5) + (-17) \\ +7 + (-17) \\ -10$$

$$\begin{array}{l} c) (+1) + (-6) + (+1) \\ \quad \underbrace{\hspace{2cm}} \\ \quad (-5) + (+1) \\ \quad \quad \quad + 6 \end{array}$$

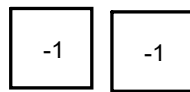
Subtracting Integers using modeling

Notes

Model  
 remove  
 $(-2) - (-5)$   
 -5 ← 5 unshaded  
 May need to add zero pairs in order to subtract

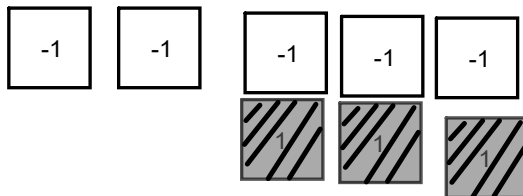
2 unshaded

Step 1) Model the first integer

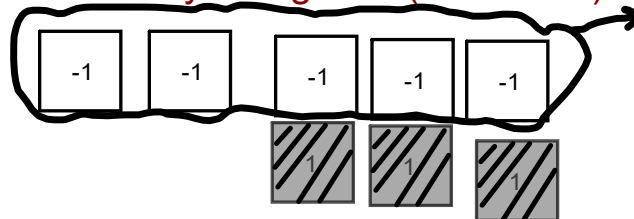


There are not enough tile to take away -5. To take away -5, we need 3 more negative tiles.

Sept 2) We add ZERO pairs without changing the value.  
 Add 3 shaded and 3 unshaded to tiles.



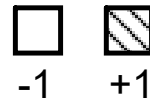
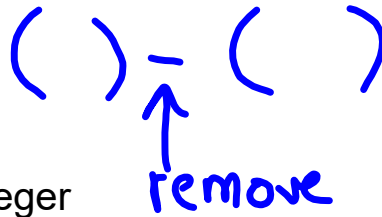
Sept 3) Now take away 5 negative (unshaded) tiles.



+3 left

$$(-2) - (-5) = (+3)$$

Subtracting with tiles



- Always model the first integer
- Remove second integer

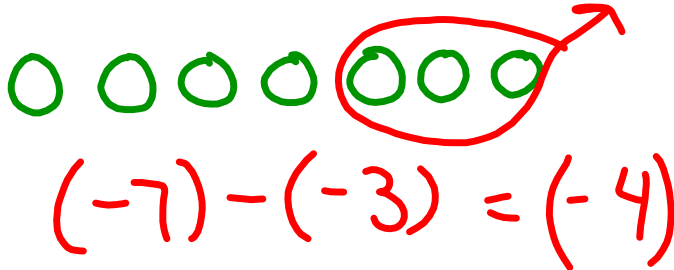
\*if there are not enough to remove then add zero pairs of tiles and it does not change the question

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



Ex2)  $(-5) - (+2) = -7$

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



=  $00000000$

Step 2)

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

Step 3) Now remove   positive tiles

=



a)  $(-5) - (+2)$   
 ↑ add      ↑ opposite  
 $(-5) + (-2) = (-7)$

### Subtracting Integers

→ add the opposite

→ switch subtracting sign to addition

→ switch sign after subtraction to opposite

b)  $(+2) - (-3)$   
           ↓ add      ↓ opp  
 $(+2) + (+3) = (+5)$

c)  $(-7) - (-3)$   
           ↓ add      ↓ opp  
 $(-7) + (+3) = (-4)$

Your Turn

Subtracting Integers using modeling

May need to add zero pairs in order to subtract

$$\begin{matrix} (+5) - (+3) \\ \downarrow \quad \downarrow \text{opp} \\ (+5) + (-3) = (+2) \end{matrix}$$

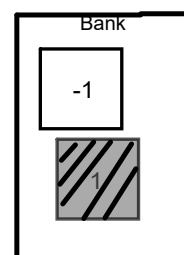
$$\begin{matrix} (-8) - (-4) \\ \downarrow \quad \downarrow \text{opp} \\ (-8) + (+4) \\ = (-4) \end{matrix}$$

$$\begin{matrix} (-6) - (-5) \\ \downarrow \quad \downarrow \text{opp} \\ (-6) + (+5) = (-1) \end{matrix}$$

$$\begin{matrix} (-4) - (-6) \\ \downarrow \quad \downarrow \text{opp} \\ (-4) + (+6) \\ = (+2) \end{matrix}$$

$$\begin{matrix} (+2) - (+5) \\ \downarrow \quad \downarrow \text{opp} \\ (+2) + (-5) = (-3) \end{matrix}$$

$$\begin{matrix} (+1) - (-3) \\ \downarrow \quad \downarrow \\ (+1) + (+3) = (+4) \end{matrix}$$



## 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

$$(+9) + (+5) = +14$$

Use the rule for Subtraction to answer the following:

(show work)

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

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

$$(c) (-7) - (-6) = \\ (-7) + (+6) = (-1)$$

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

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

$$(f) (+2) - (-3) = \\ (+2) + (+3) = (+5)$$

$$(g) (-5) - (-6) = \\ (-5) + (+6) = (+1)$$

a)

$$\begin{aligned}
 & (+7) + (-2) - (-3) \\
 & \quad (+5) - (-3) \\
 & \quad \quad (+5) + (+3) \\
 & \quad \quad \quad (+8)
 \end{aligned}$$

b)

$$\begin{aligned}
 & (+6) - (+2) + (+3) \\
 & \quad (+6) + (-2) + (+3) \\
 & \quad \quad (+4) + (+3) \\
 & \quad \quad \quad (+7)
 \end{aligned}$$

# Class/Homework

## Quiz On Rules

sheet 283

Adding, Subtracting, Multiplying, Dividing

(Rules)  
# 1 to 6 all Questions (Show work)

# 1 a b c d

# 2 a b c d

# 3 a b c d

# 4

# b a b c

Warm Up Quiz tomorrow on rules of add, subtract, multiply and divide

## Homework Solutions

sheet 235

$$3) a) (+5) + \underline{+3} = +8$$

$$b) \underline{-1} + (-3) = -4$$

$$c) (+3) + \underline{-2} = +1$$

$$d) (-5) + \underline{+2} = -3$$

$$e) (+2) + \underline{-1} = +1$$

$$f) \underline{+6} + (-6) = 0$$

$$4) a) (+2) + (+3) = +5$$

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

$$e) (-10) + (-6) = -16$$

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

$$d) (+8) + (-1) = +7$$

$$f) (+4) + (-13) = -9$$

$$5) a) (-4) + (+7) = +3$$

$$b) (0) + (-6) = -6$$

## Attachments

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Grade 8 Math SHEET 235.docx

Grade 8 Math SHEET 283 Subtraction review.docx