



○ = -
● = +

Warm Up Grade 8

Sept. 12, 2017



1) Use rules to find the quotient $(-18) \div (-9)$ then write 2 multiplication statements using the statement.

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

$(+2) \times (-9) = -18$

$(-9) \times (+2) = -18$

↑ same
↓ ⊕

2) Use rules to find the quotient of

$(-10) \div (-2) = +5$

Same sign
So
Ans ⊕

3) Find the product using the distributive property

show all work

Signs diff
 $(-32) \times (+51)$
 $= -1632$

Box

	30	2
50	$30 \times 50 = 1500$	$2 \times 50 = 100$
1	$1 \times 30 = 30$	$1 \times 2 = 2$

1500
100
30
2
+

1632

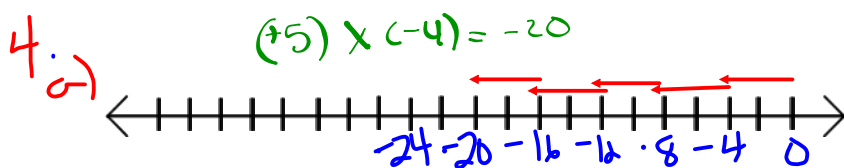
pg 80

3a) $(+25) \div (+5) = +5$
 $(+5) \times (+5) = +25$

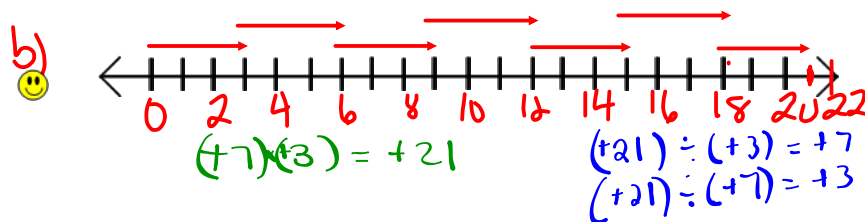
b) $(+24) \div (-2) = -12$
 $(-2) \times (-12) = +24$
 or $(-12) \times (-2) = +24$

c) $(-14) \div (-7) = +2$
 $(-7) \times (+2) = -14$
 or $(+2) \times (-7) = -14$

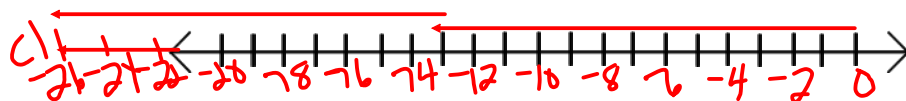
d) $(-18) \div (+6) = -3$
 $(+6) \times (-3) = -18$
 or $(-3) \times (+6) = -18$



☺ $(-20) \div (-4) = +5$

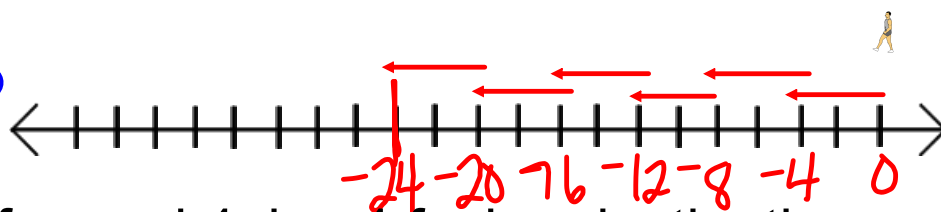


☺ $(+21) \div (+3) = +7$



☺ $(-26) \div (-13) = +2$
 $(-26) \div (+2) = (-13)$
 $(+2) \times (-13) = -26$

5 ✘

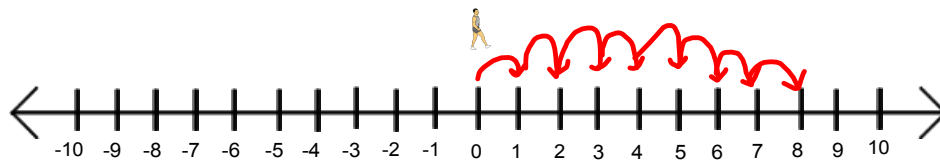


forward 4 is +4 facing destination

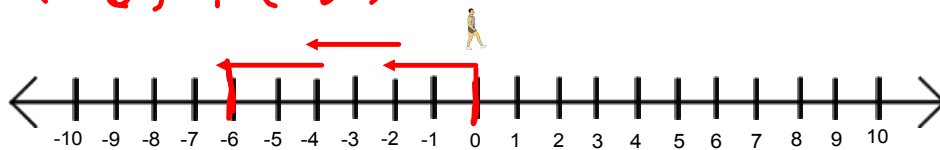
$$\text{😊 } (-24) \div (+4) = -6$$

I found out by drawing the number line.

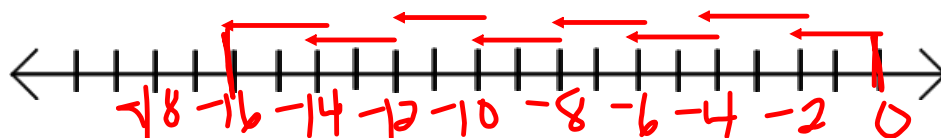
$$\text{b. a) } \text{😊 } (+8) \div (+1) = +8$$



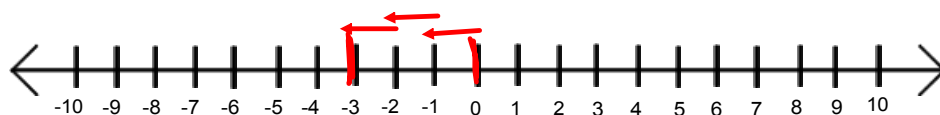
$$\text{b) } (-6) \div (-2) = +3$$



$$\text{c) } \text{😊 } (-16) \div (+8) = -2$$



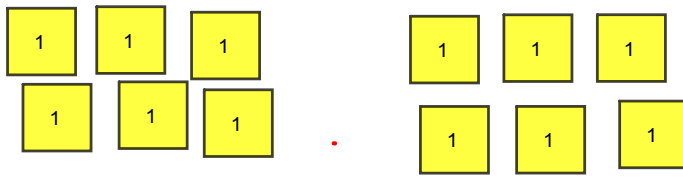
$$\text{d) } (-3) \div (-1) = +3$$



$$\text{e) } \text{😊 } (+15) \div (-3) = -5$$

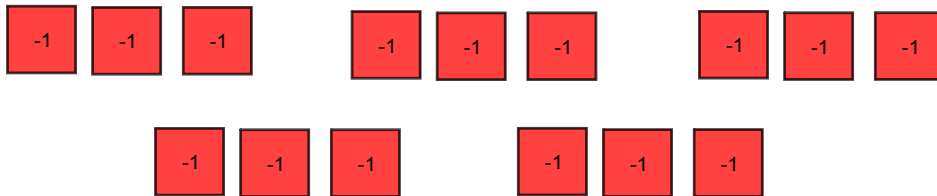
$$\text{f) } (-20) \div (+2) = -10$$

7a) 12 yellow tiles grouped into sets of 6 $(+12) \div (+6) = +2$



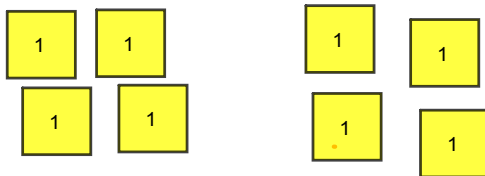
2 sets of 6 $(+12) \div (+6) = +2$

in 15 red tiles in groups of 3



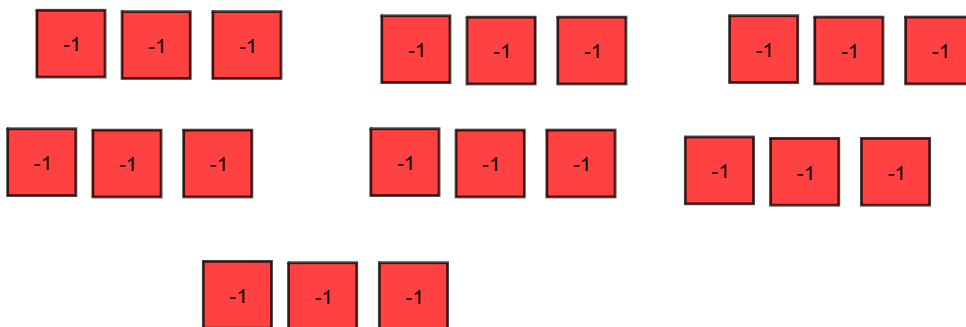
$$(-15) \div (-3) = +5$$

b) 8 yellow tiles among 2 sets



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

21 red tiles among 7 sets

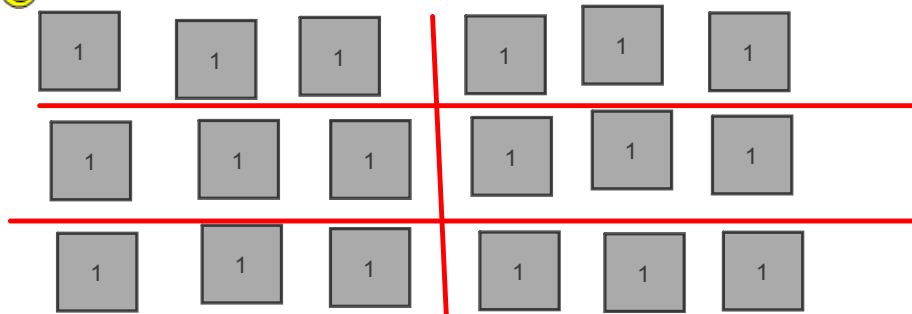


$$(-21) \div (+7) = -3$$

Dividing Using Tiles to model

pg 81

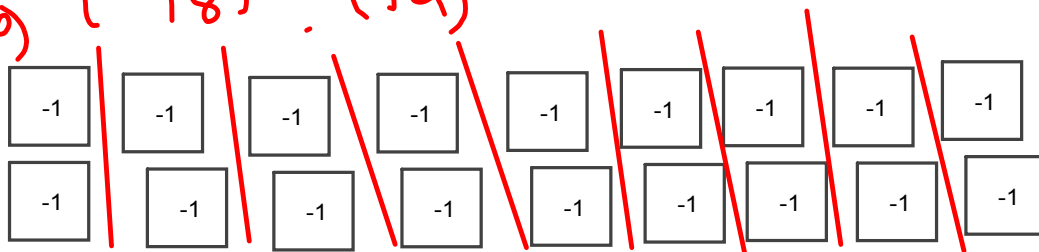
8. (a) $(+18) \div (+6) = +3$



$(+18) \div (+6) = +3$

in each group +3

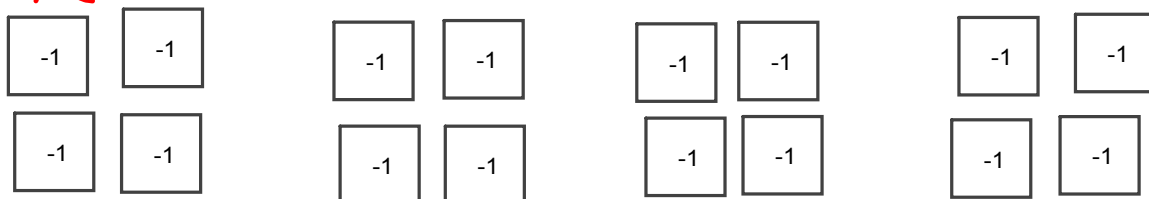
b) $(-18) \div (+9) = -2$



-2 in each group

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

c) $(-16) \div (-4) = +4$



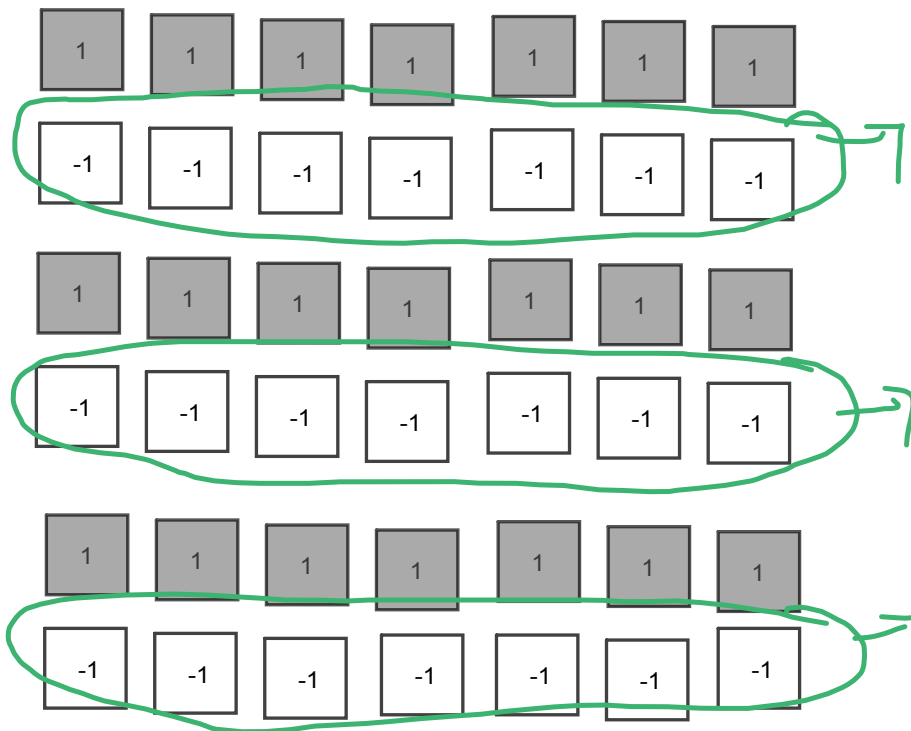
4 groups of -4

so $(-16) \div (-4) = +4$



$$d) (+21) \div (-7) = -3$$

take away groups of -7

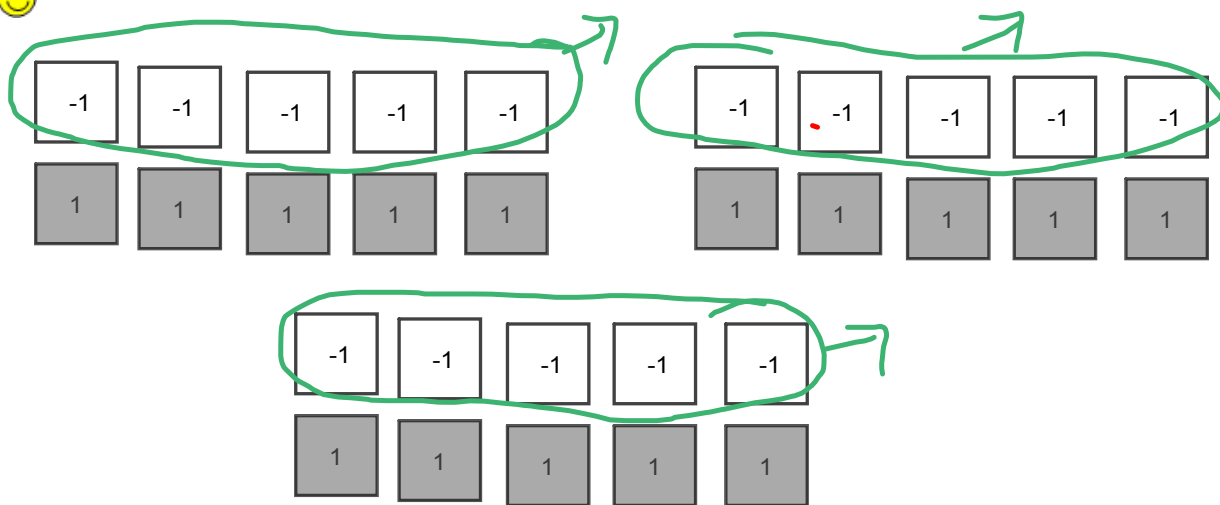


How many groups of -7 did you take away to get $+21$?

Took away 3 groups of -7

$$\text{so } (+21) \div (-7) = -3$$

😊 e) $(+15) \div (-5) = -3$

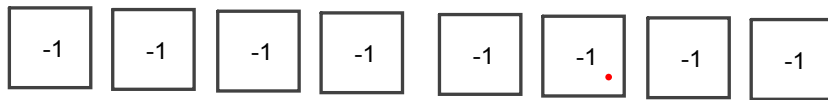
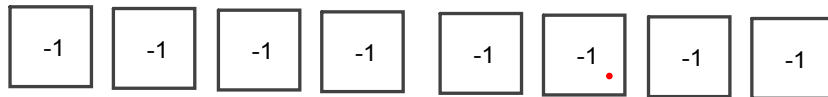


Take away groups of -5

Took away 3 groups of -5
 $(+15) \div (-5) = -3$

$$f) (-16) \div (-8)$$

Divide -16 into groups of -8



2 groups of -8

$$\text{so } (-16) \div (-8) = +2$$

Homework pg 81 #9 - model
Board question
11 - 16

10) Board question - Model

$$a) (+12) \div (+4)$$

$$b) (-10) \div (-5)$$

$$c) (+6) \div (-2)$$

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

$$e) (-4) \div (+4)$$

$$f) (-12) \div (-3)$$

pg 74

$$*9a) +1, +2, +4, +8, \dots$$

$\overset{x+2}{\curvearrowright}$
 $\overset{x+2}{\curvearrowright}$
 $\overset{x+2}{\curvearrowright}$

mult. each term by 2,

$$+16, +32, +64$$

5) $+1, -6, +36, -216, \dots$

$\overset{x-6}{\curvearrowright}$
 $\overset{x-6}{\curvearrowright}$
 $\overset{x-6}{\curvearrowright}$

mult. each term by -6

$$+1296, -7776, +46656$$

6) $-1, +3, -9, +27, \dots$

mult. each term by -3

$$-81, +243, -729$$

d) $-4, +4, -4, +4, \dots$

mult. each term by -1

$$-4, +4, -4$$

$$10 \quad 17 \times (-26)$$

$$17 \times 20 + 17 \times 6$$

$$340 + 102 = -442$$

$$442$$

☺ 11. +9, -8, -5, +4, -2

a) greatest product $\rightarrow \oplus$ $\begin{matrix} (+)(+) \\ (-)(-) \end{matrix}$
 $(-8) \times (-5) = +40$

b) least product $\rightarrow \ominus$ $(+)(-)$
 $(+9) \times (-8)$

- 12 (i) $(-2) \times (-3) = +6$
 (ii) $(-2) \times (-3) \times (-4) = -24$
 (iii) $(-2) \times (-3) \times (-4) \times (-5) = +120$
 (iv) $(-2) \times (-3) \times (-4) \times (-5) \times (-6) = -720$

b) The product of an even number of negative factors is a positive
 The product of an odd number of negative factors is a negative.

c) This is true when you have both positive and negative factors.

* 13. Error $(+60) \times (-20)$
 -1200

$$+60 \quad [(-20) + (+2)]$$

$$(+60) \times (-20) + (+60) \times (+2)$$

$$-1200 + (+120)$$

$$-1080$$

b) Correction $-1200 + +120$
 -1080

14. Word Problem

18) product -144

add (-7)

List factors of 144

$$+ 1 \times -144$$

$$+ 2 \times -72$$

$$+ 3 \times -48$$

$$+ 4 \times -36$$

$$+ 6 \times -24$$

$$+ 8 \times -18$$

$$+ 9 \times -16$$

$$+ 12 \times -12$$



$$9 + (-16) = -7$$

$$(-) (+) = -144$$

$$(-) + (+) = -7$$

↑
larger

same

Multiply $(-93)(-82)$
 $= +7626$

	80	2
90	90×80 $= 7200$	90×2 $= 180$
3	80×3 $= 240$	3×2 $= 6$

Box method

$$\begin{array}{r} 7200 \\ 180 \\ 240 \\ 6 \\ \hline 7626 \end{array}$$

Class / Homework

Page 80 - 81 ^{NO Tiles} #8(b,d,f), #14

#11 #15

#12 #16

#13

Page 99 #1(a,b,c, d, e,f,g,h USE RULES)

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

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

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

a b
start at zero

Division word problems

$$\begin{matrix} \text{(Total)} \\ \text{(change)} \end{matrix} \div \begin{matrix} \text{(change)} \\ \text{(size)} \end{matrix} = ()$$

Quiz Wednesday (Tomorrow)

*on multiplication modelling with tiles & rules & Box Method

*Division Rules

if you are not quiet pg 166 # 8 to #15