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● = +

Warm Up Grade 8

Sept. 17, 2021



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

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

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

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

2) Use rules to find the quotient of

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

↑ ↑
same
⊕

3) Find the product using the distributive property **Box** show all work

$$(-32) \times (+51)$$

	30	2	
50	$30 \times 50 = 1500$	$2 \times 50 = 100$	$\begin{array}{r} 1500 \\ + 100 \\ + 30 \\ + 2 \\ \hline 1632 \end{array}$
1	$1 \times 30 = 30$	$1 \times 2 = 2$	

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

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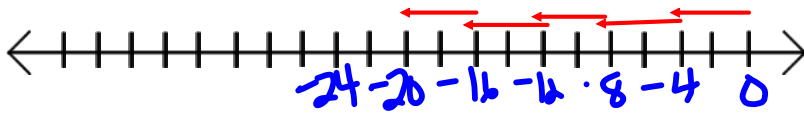
3a) $(+25) \div (+5) = +5$
 $(+5) \times (+5) = +25$

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

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

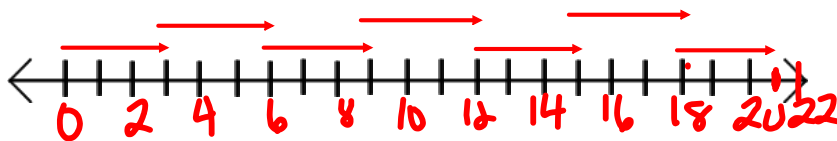
d) $(-18) \div (+6) = -3$
 $(+6) \times (-3) = -18$
 or $(-3) \times (+6) = -18$

4. a)

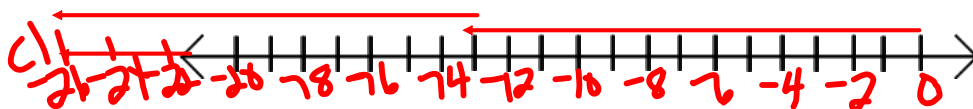


☺ $(-20) \div (-4) = +5$

b)



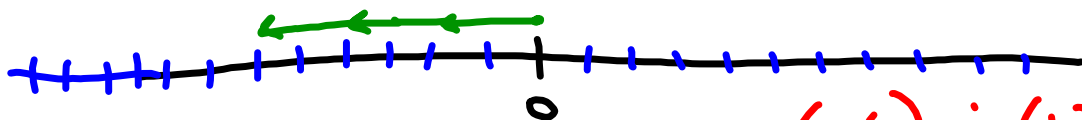
☺ $(+21) \div (+3) = +7$



☺ $(-26) \div (-13) = +2$

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

Now write \div

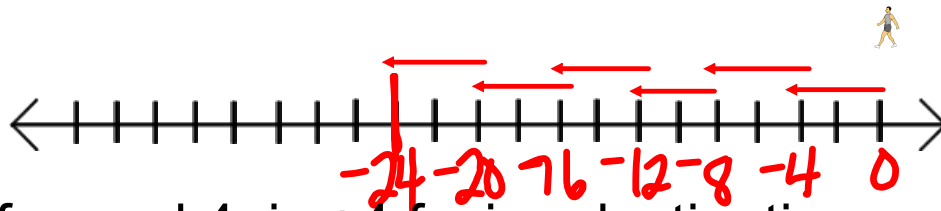


$$(-6) \div (+3) = (-2)$$

$$(-6) \div (-2) = +3$$

$$\begin{aligned} &(\text{Total length}) \div (\text{arrow}^\#) \\ &= \text{arrow size} \end{aligned}$$

5.

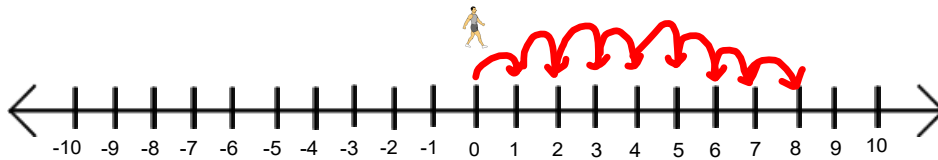


forward 4 is +4 facing destination

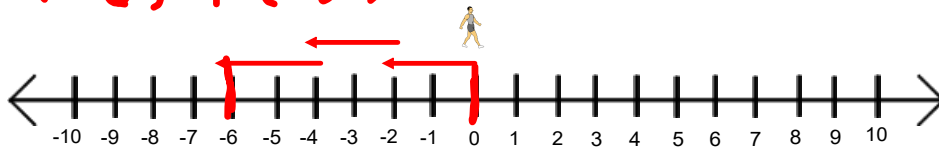
$$(-24) \div (+4) = -6$$

I found out by drawing the number line.

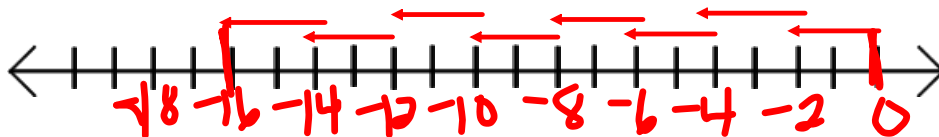
b. a) $(+8) \div (+1) = +8$



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



c) $(-16) \div (+8) = -2$



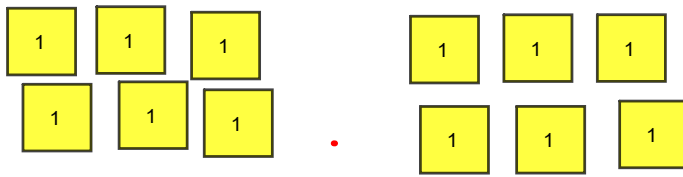
d) $(-3) \div (-1) = +3$



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

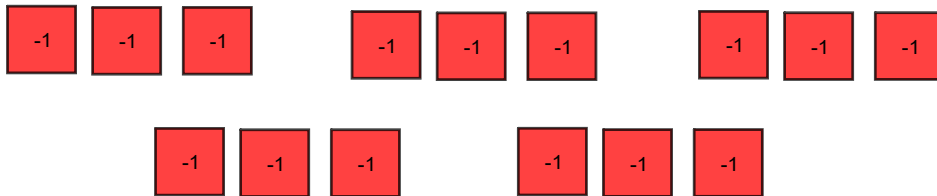
f) $(-20) \div (+2) = -10$

7a) 12 yellow tiles grouped into sets of 6



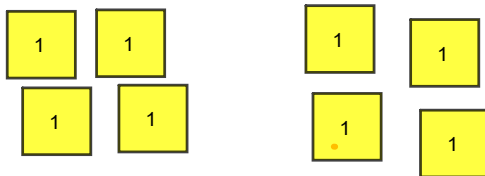
2 sets of 6
 $(+12) \div (+6) = +2$

10) 15 red tiles in groups of 3



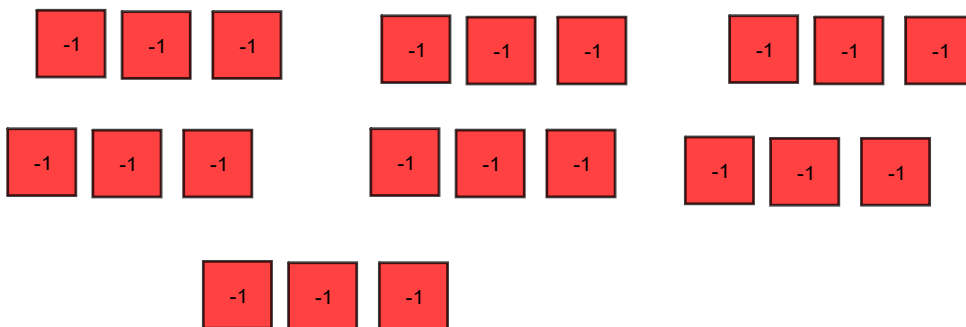
$(-15) \div (-3) = +5$

b) 8 yellow tiles among 2 sets



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

21 red tiles among 7 sets

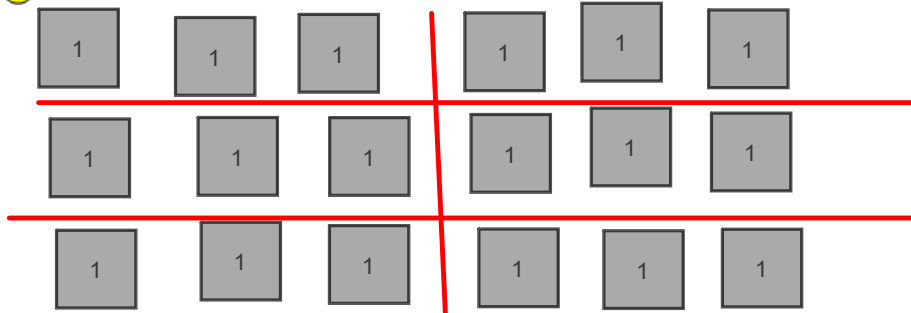


$(-21) \div (+7) = -3$

Dividing Using Tiles to model

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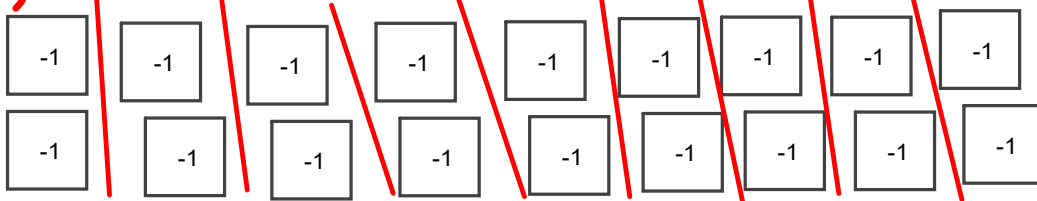
8. (a) $(+18) \div (+6) = +3$



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

in each group +3

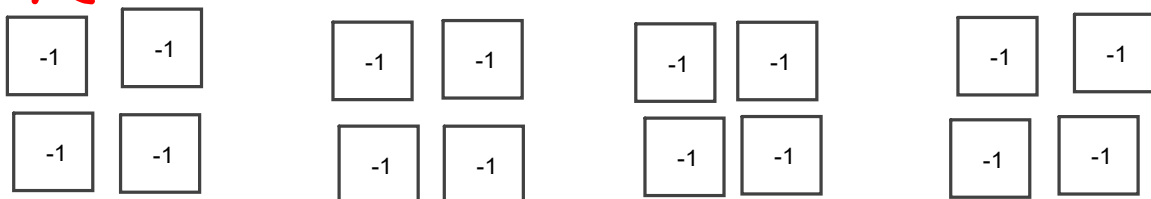
b) $(-18) \div (+9) = -2$



-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

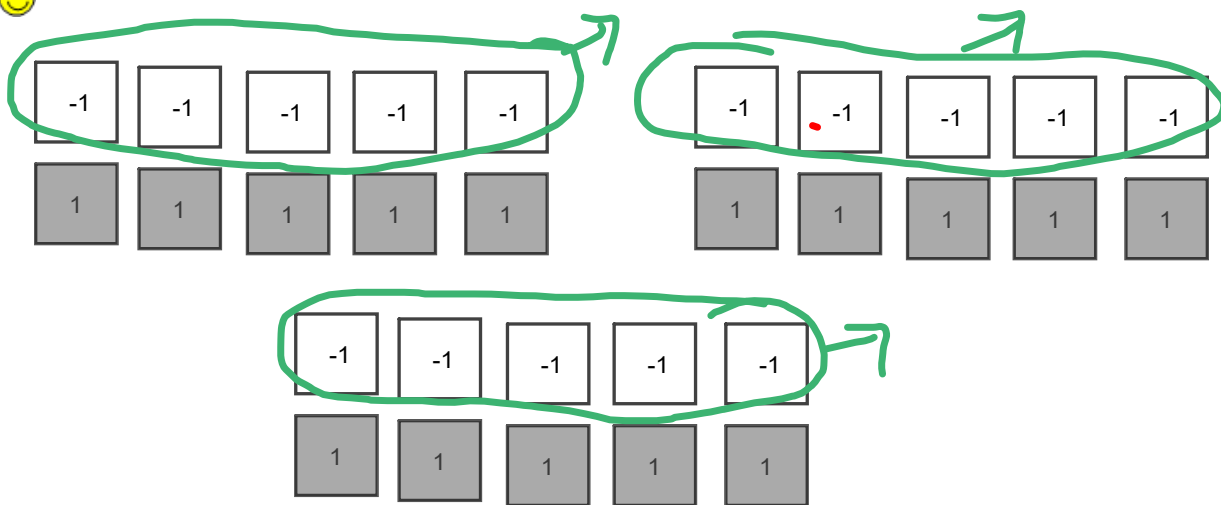


How many groups of -7 did you take away to get $+21$?

Took away 3 groups of -7

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

😊 e) $(+15) \div (-5) = -3$

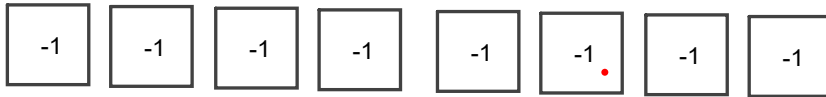
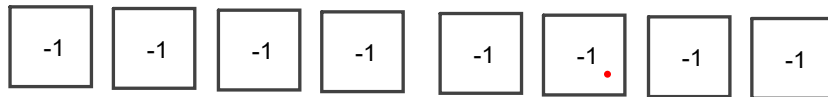


Take away groups of -5

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

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

Divide -16 into groups of -8



2 groups of -8

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

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

16) Board question - Model

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

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

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

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

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

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

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

mult. each term by 2,
 $\underline{+16}, \underline{+32}, \underline{+64}$

$$b) +1, -6, +36, -216,$$

mult. each term by -6
 $+1296, -7776, +46556$

$$c) -1, +3, -9, +27$$

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
 $(-8) \times (-5) = +40$

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

- 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 $(+60) \times (-20) = -1200$

$+60 [(-20) + (+2)]$
 $(+60) \times (-20) + (+60) \times (+2)$
 $-1200 + (+120)$
 -1080

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

4. Word Problem

18) product -144
add (-7)

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

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

List factors of 144

$$1 \times 144$$

$$2 \times 72$$

$$3 \times 48$$

$$4 \times 36$$

$$6 \times 24$$

$$8 \times 18$$

$$9 \times 16$$

$$12 \times 12$$

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

Multiply $(-93)(-82)$

Class / Homework

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$() \div () = ()$
Big \div Small

#11,

~~#11~~

#12

~~#12~~

#13

~~#13~~

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

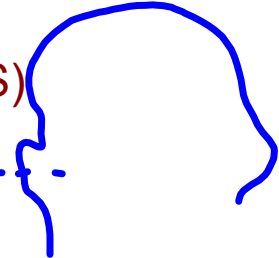
$(+) \div (-) = -$

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

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

Hi !!

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Quiz (Tuesday)

*on multiplication modelling with tiles & rules & Box Method

*Division Rules

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