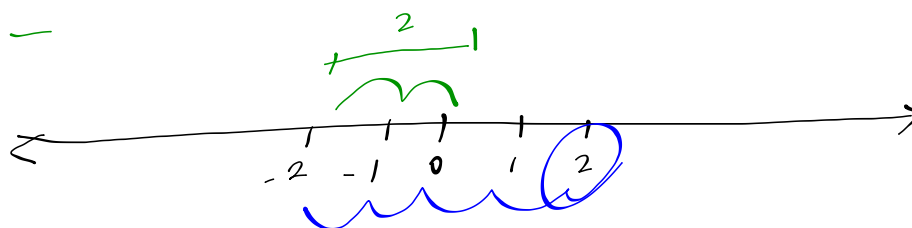


Recall: Lesson 3:

Evaluate:

$$-2 - (-4) = 2 \text{ subtraction / } \times$$

$$-2 + 4 = 2 \text{ addition } \downarrow \downarrow +$$



Lesson 4

Sept 2, 2022

: Multiplying Integers

-2/10 (not 0.5)

Understanding Multiplication

e.g. $3 \times 2 = \underbrace{2 + 2 + 2}_{2 \text{ added to itself 3 times}} = 6$

a concise addition

$5 \times 4 = 4 + 4 + 4 + 4 + 4 = 20$
 $= 5 + 5 + 5 + 5 = 20$

$10 \times 3 = \underbrace{3 + 3 + 3 \dots + 3}_{10 \text{ times}} = 30$

Sean made a 2⁰ bet w 2 load and lose 3 times.

$3 \times (-2) = \underbrace{-2 + (-2) + (-2)}_{3 \text{ times}} = -6$

3(-2)
 this reads, 3 times -2

Attention: 3 - 2
 this reads 3 minus 2

Bonus: tough

$x + x + x = 3x$

$y + y = 2y$

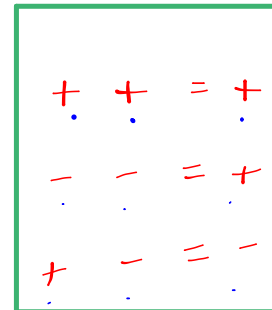
2 times
 $2 + 2 + 2 + 2 = 4 \times 2$

Exercise 4.1 b)

Apply the law of signs to determine the sign of the following products. Verify your answer using a calculator. See the example in the first row.



Product	Sign of Product	Calculator Value
1. -10×2	-	-20
2. $4 \times (-3)$	-	-12
3. $2(-1)$	-	-2
4. $10(3)$	+	30
5. 5×5	+	25
6. $-2(8)$	-	-16
7. $0(12)$	non-applicable N/A	0
8. $3 \times (-9)$	-	-27
9. -1×1	-	-1
10. $5(-4)$	-	-20



Multiplication of 2 Negative

Integers

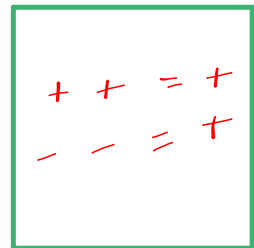
"a double negative" e.x. -2×-2

↳ ~~to~~ to be avoided
 in math and I was careful!
 in english I wasn't careful
 It's not true that I do not like her. } confusing
 . I don't hate her. (connotation)

Evaluate

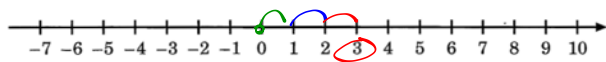
$$-2 \times -2 = 2 \times 2 = 2 + 2$$

$$-3 \times -2 = 3 \times 2 = 2 + 2 + 2$$



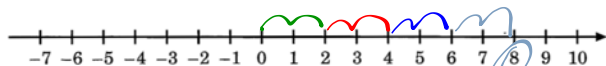
Exercise 4.2

Referring to Example 4.2, first evaluate the two negative signs. Then rewrite the multiplication as addition and finally illustrate the addition on the number line. Give the answer.



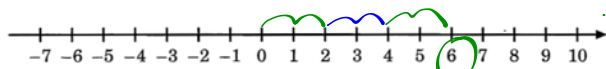
1. $-3(-1)$

$$\begin{array}{r} 3(-1) \\ \hline 1 + 1 + 1 = 3 \end{array}$$



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

$$\begin{array}{r} 4 \times 2 \\ \hline 2 + 2 + 2 + 2 = 8 \end{array}$$



3. $-2 \cdot (-3)$

$$\begin{array}{r} 2(3) \\ \hline 2 + 2 + 2 = 6 \end{array}$$

+ + = +

- - = +

You do 4.2 a)
4.2 b)
4.3 a) 4.3 b)