(51) $3^4 + 4^2 \div 2^3 - 5^2$

$81 + 16 \div 8 - 25$

$81 + 2 - 25$

$83 - 25$

58

(79) $510 \div 0.17$

$$0.17 \overline{)510.00} = 3000.$$

51

(75) $0.12(2000)$

$$\begin{array}{r} 0.12 \\ \times\ 2000 \\ \hline 240.00 \end{array}$$

$$\begin{array}{r} 2000 \\ \times\ 0.12 \\ \hline 4000 \\ 2000 \\ \hline 240.00 \end{array}$$

Multiply Fractions

Ex $\frac{2}{3} \cdot \frac{4}{6} = \frac{2 \cdot 4}{3 \cdot 6} = \frac{4}{9}$

3

$\frac{8 \div 2}{18 \div 2} = \frac{4}{9}$

$\frac{2 \cdot 4}{3 \cdot (2 \cdot 3)} = \frac{4}{3 \cdot 3} \left(\frac{2}{2}\right) = \frac{4}{9}$

(iv) $7 \cdot \frac{2}{3}$ $\quad 4\frac{2}{3} = \frac{14}{3}$

$\frac{7}{1} \cdot \frac{2}{3}$

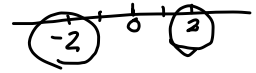
$\frac{14}{3} \rightarrow 4\frac{2}{3}$

Reciprocals

$2 \rightarrow \frac{1}{2}$

$\frac{1}{4} \rightarrow \frac{4}{1}$

opposite



Two numbers whose product is one

$\frac{4}{1}\left(\frac{1}{4}\right) = \frac{4}{4} = 1$

Reciprocal of $\frac{3}{7}$? $\frac{7}{3}$

Absolute Value - distance from zero

$|-5| = 5$

$|5| = 5$

-5 and 5 opposites

Symbols if $x \geq 0$ $|x| = x$

$x < 0$ $|x| = -x$

$|-3| = -(-3)$

3

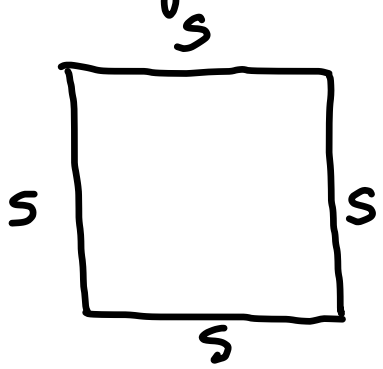
$-|-3| = -3$

$-1(|-3|)$

$-1(3)$

-3

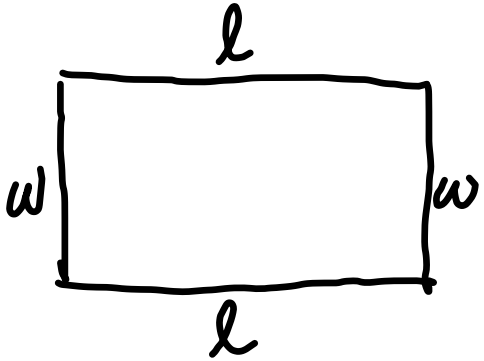
Square



Perimeter = $4s$

Area = s^2

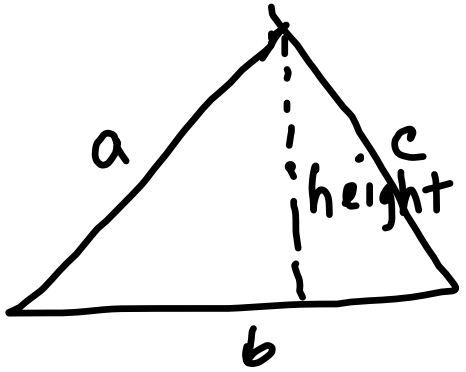
Rectangle



$P = 2l + 2w$

$A = l \cdot w$

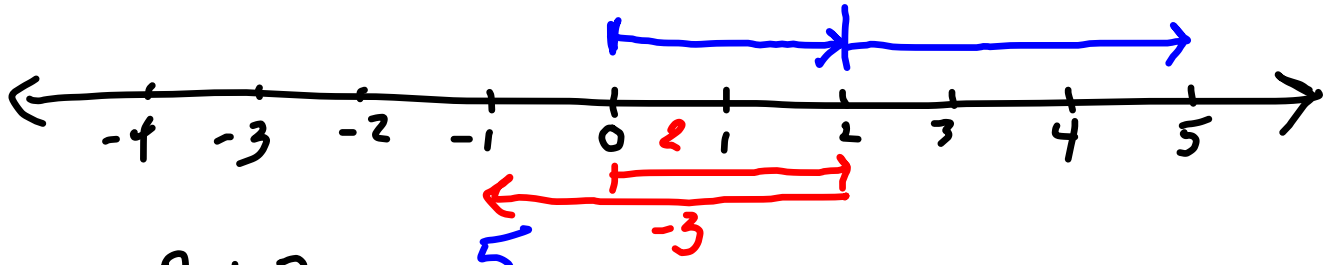
Triangle



$P = a + b + c$

$A = \frac{1}{2} b \cdot h$

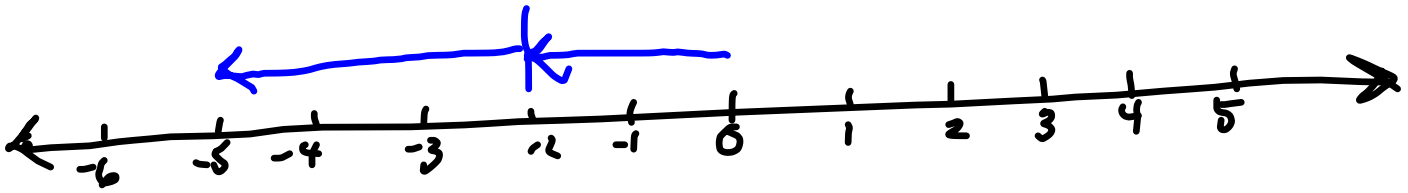
1.3 Addition of Real Numbers



$2+3 = 5$

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

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



Rules for adding real numbers

① To add two numbers with the same sign.

add their absolute values and give them the common sign

$2 + 3 = 5$

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

② To add two # with different signs subtract the absolute value of smaller from larger.

$2 + (-3) = -1$

The sum is the sign of the larger absolute value.

$-2 + (3) = 1$

1.4 Subtracting Real Numbers

$$a - b = a + (-b)$$

adding the opposite

$$a - (-b) = a + b$$

(iv) $7 + (-3) - 5$

$7 + (-3) + (-5)$

$4 + (-5)$

-1

(ex) Find the difference of 3 and -7

$3 - (-7)$

$3 + 7$

10

(ex) $3 \cdot 2^3 - 4 \cdot 3^2$

$3 \cdot 8 - 4 \cdot 9$

$24 - 36$

$24 + (-36)$

-12

1.6 Multiplication of Real Numbers

$3 \cdot 5 = 15$

① If both numbers are the same sign, the product is positive

$(-3)(-5)$

15

$-3[5 + (-5]$

$-3(5) + (-3)(-5)$

$-15 + 15$

② If the numbers have opposite signs, the product is negative

$-3(5) = -15$

$(-3)(-2)(-2)$ → if there are an odd # of neg signs The answer is neg.

$6(-2)$

-12

→ even # of neg signs, the answer is positive

$(-3)(-2)(-2)(-2)$ — —

$6(-2)(-2)$ +

$(-12)(-2)$

24 — — —

↘

\+ —

Fractions use the same rules.

$\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)$

$\frac{2\cdot 2}{3\cdot 3}$

$\frac{4}{9}$

$\left(-\frac{5}{6}\right)^2$

$\left(-\frac{5}{6}\right)\left(-\frac{5}{6}\right)$

$\frac{25}{36}$

different from

$-\left(\frac{5}{6}\right)^2$

$-\frac{25}{36}$

$-2^2 = -4$

$(-2)^2 = 4$

1.7 Division

$$a \div b = a\left(\frac{1}{b}\right)$$

$$\frac{a}{b} = a\left(\frac{1}{b}\right)$$

$$\frac{6}{-2} = 6\left(-\frac{1}{2}\right) = -3$$

$$\frac{-6}{-2} = 3$$

$$\frac{-6}{2} = -3$$

Remember

$$-\frac{a}{b} = \frac{a}{-b} = -\frac{a}{b}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$$

$$\frac{\frac{a}{b}\left(\frac{d}{c}\right)}{\frac{c}{d}\left(\frac{d}{c}\right)}$$

$$\frac{\frac{a}{b} \cdot \frac{d}{c}}{1}$$

$$\frac{a}{b} \cdot \frac{d}{c}$$

ex $\quad -\frac{4}{3} \div \frac{2}{5}$

$$-\frac{\cancel{4}^{2}}{3} \cdot \frac{5}{\cancel{2}_{1}}$$

$$-\frac{20}{6}$$

$$-\frac{10}{3}$$

$\frac{8}{4} = 2$

because $4 \cdot 2 = 8$

$\frac{0}{5} = 0$

because $5 \cdot 0 = 0$

$\frac{4}{0} = n$

this means that

$0 \cdot n = 4$

undefined

Homework – do 1.2, 1.3, 1.4, 1.6, 1.7