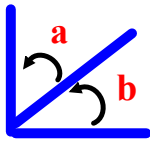
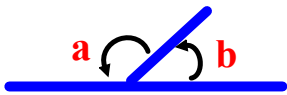


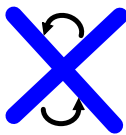
# Let's Sum It Up



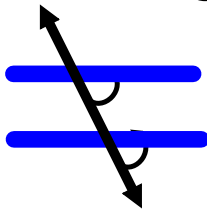
**Rule - Complimentary angles a & b add up to  $90^\circ$**



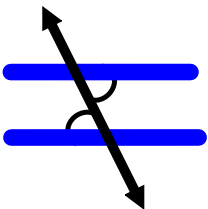
**Rule - Supplementary angles a & b add up to  $180^\circ$**



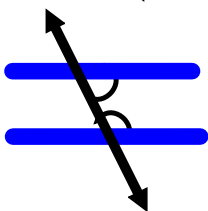
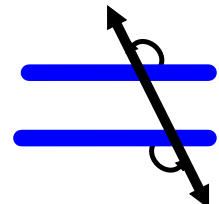
**Rule - Vertically Opposite angles are equal**



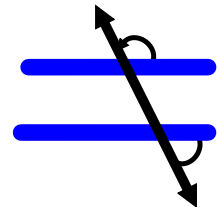
**Rule - Corresponding angles are equal**

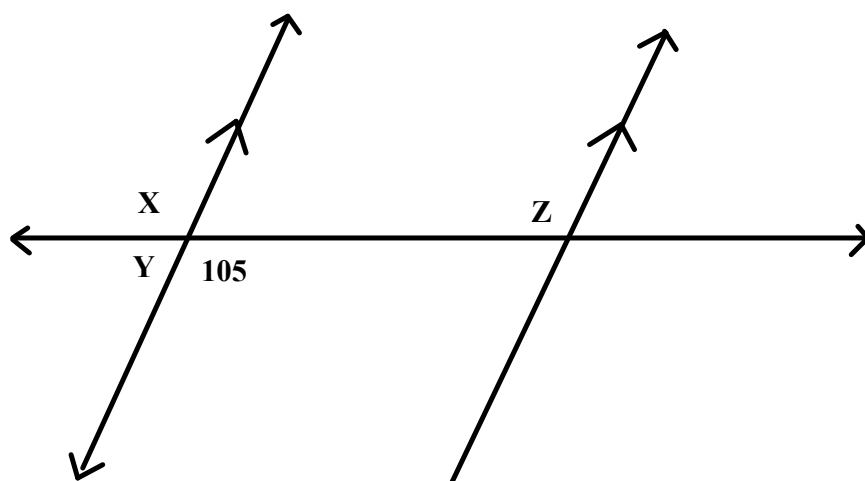


**Rule - Alternate Interior angles are equal  
Alternate Exterior angles are equal**



**Rule - Co-interior angles add up to  $180^\circ$   
Co-Exterior angles add up to  $180^\circ$**





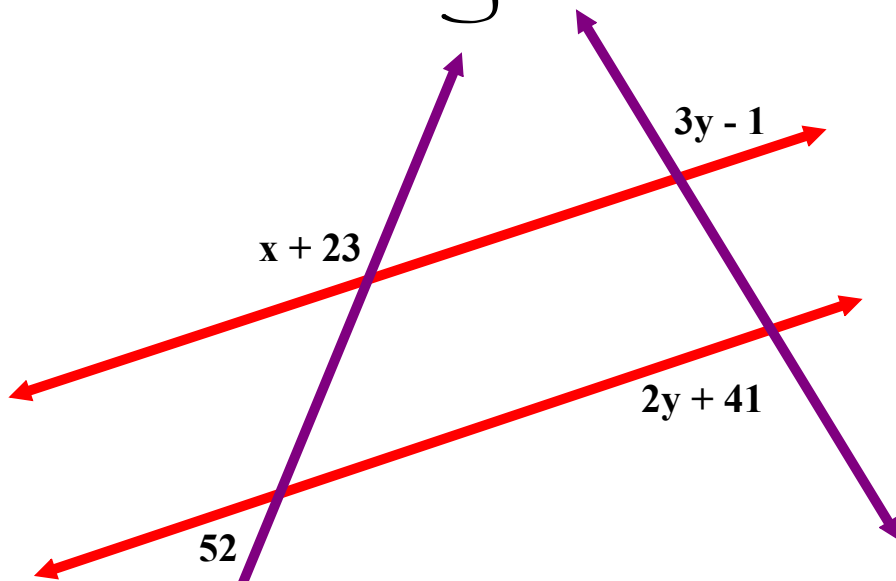
$$x = 105^\circ$$

$$y = 180^\circ - 105^\circ$$

$$y = 75^\circ$$

$$z = 105^\circ$$

Solve for  $x$  and  $y$ :



$$x + 23 + 52 = 180$$

$$x + 75 = 180$$

$$x = 180 - 75$$

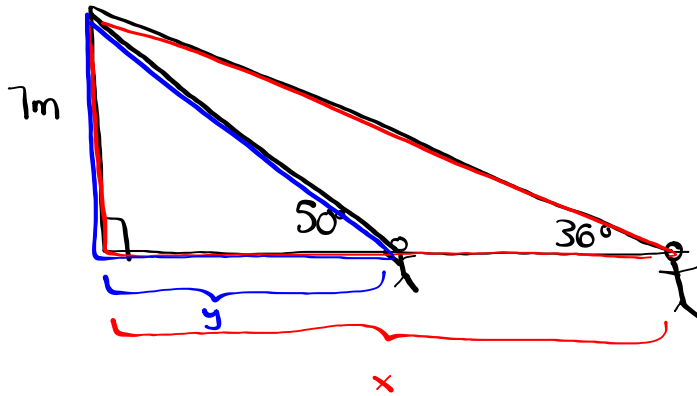
$$x = 105$$

$$3y - 1 = 2y + 41$$

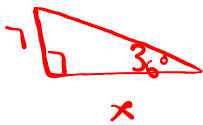
$$3y - 2y = 41 + 1$$

$$y = 42$$

From his line of sight 7m high, a life guard sees <sup>elevation</sup> two people in distress. The angles of ~~depression~~ to the individuals are 50 and 36 degrees respectively. What is the distance between the two people in distress?



Solve for x:



$$\begin{aligned} \text{opp} &= 7 \\ \text{adj} &= x \\ \theta &= 36^\circ \end{aligned}$$

$$\tan \theta = \frac{o}{a}$$

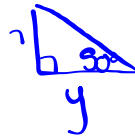
$$\tan 36^\circ = \frac{7}{x}$$

$$0.7265 = \frac{7}{x}$$

$$\frac{0.7265x}{0.7265} = \frac{7}{0.7265}$$

$$x = 9.64\text{m}$$

Solve for y:



$$\begin{aligned} \text{opp} &= 7 \\ \text{adj} &= y \\ \theta &= 50^\circ \end{aligned}$$

$$\tan \theta = \frac{o}{a}$$

$$\tan 50^\circ = \frac{7}{y}$$

$$1.1918 = \frac{7}{y}$$

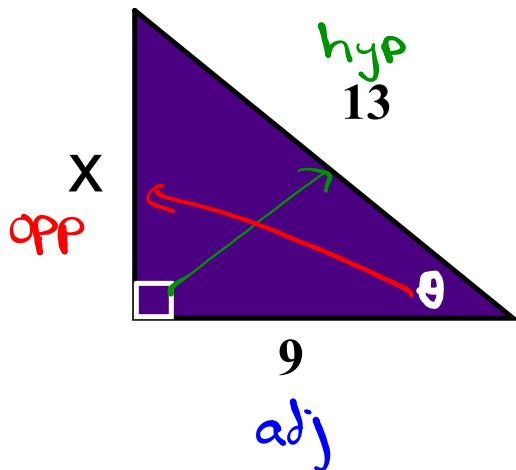
$$\frac{1.1918y}{1.1918} = \frac{7}{1.1918}$$

$$y = 5.87$$

$$9.64 - 5.87 = \boxed{3.77\text{m}}$$

The 2 swimmers are 3.77m apart

- a) Using the proper trig ratio, find theta.  
 b) Find the missing side x.



$$a) \cos \theta = \frac{a}{h}$$

$$\cos \theta = \frac{9}{13}$$

$$\cos \theta = 0.6923$$

$$\theta = 46^\circ$$

$$b) a^2 + b^2 = c^2$$

$$(9)^2 + b^2 = (13)^2$$

$$81 + b^2 = 169$$

$$b^2 = 169 - 81$$

$$b^2 = 88$$

$$b = \sqrt{88}$$

$$b = 9.4$$

On a specific date, the selling rate for China's yaun compared to the Canadian dollar is 0.162600 and the buying rate is 0.127100. How many yaun will you receive for \$500.00 CAD?

1. Let  $x = ?$
2. Set up ratio (words)
3. Set up proportion
4. Solve

① Let  $x = \text{yaun}$

②  $\frac{1}{\text{rate}} = \frac{\text{yaun (foreign)}}{\text{CAD (domestic)}}$

③  $\frac{1}{0.1626} = \frac{x}{500}$

④  $\frac{0.1626x}{0.1626} = \frac{500}{0.1626}$

$$x = 3075.03$$

On the same day as the previous example. If, after purchasing your yaun, you decided not to go to China and sold the yaun back to the bank, how much would you lose?

① Let  $x = \text{CAD}$

②  $\frac{1}{\text{rate}} = \frac{\text{yaun}}{\text{CAD}}$

1. Let  $x = ?$
2. Set up ratio (words)
3. Set up proportion
4. Solve

③  $\frac{1}{0.1271} = \frac{3075.03}{x}$

④  $x = \$390.84$

$$\text{Total Loss} = 500.00 - 390.84$$

$$= \$109.16$$

A chainsaw's engine uses a mixture of 33 L of gas to 2 L of oil. How much oil must you mix with 15 L of gas?

① Let  $x = \text{oil}$

②  $\frac{\text{gas}}{\text{oil}}$

③  $\frac{33}{2} = \frac{15}{x}$

④  $\frac{33x}{33} = \frac{30}{33}$

$$x = 0.91L$$

Recipe #2

2 cups of concentrate

5 cups of water

**You want to make 10 cups of Recipe #2. How many cups of concentrate and water will you need?**



Jonathan earns \$18.50/hour for regular hours of work.  
Jonathan works a 40 hour work week, and is paid time and a half for overtime.

a) What is his overtime rate of pay?

$$\$18.50/\text{hr} \times 1.5 = \$27.75/\text{hr}$$

b) If he works a 45 hour work week, what is his gross pay?

Regular Pay:	OT Pay:	Gross Pay:
40 hrs x \$18.50/hr	5 hrs x \$27.75/hr	\$740.00 + \$138.75
= \$740.00	= \$138.75	<span style="border: 1px solid black; padding: 2px;">= \$878.75</span>

You worked a four-hour shift as a server and your customer bills totalled \$2500.00 before tips. Your rate of pay is \$10.00/h.

a) How much did you make before tips during the four hours?

$$4 \text{ hrs} \times \$10.00/\text{hr} \\ = \$40.00$$

b) If all of your customers tipped you 10%, how much did you make in **total** during your 4 hour shift?  $10\% = 0.1$

$$\begin{array}{r} \$2500.00 \\ \times 0.1 \\ \hline \$250.00 \end{array}$$

$$\begin{array}{l} \text{Total Pay:} \\ \$250.00 + \$40.00 \\ = \boxed{\$290.00} \end{array}$$

$$4.95 = 0.0495$$

You need to calculate the Canada Pension Plan deduction for John, whose is paid weekly with a contribution rate of 4.95% of any gross earnings above \$3500.00. If John's gross pay is \$1275.00/week, calculate his CPP contributions.

$$\begin{array}{r} \textcircled{1} \quad \$ 3500.00 \\ \quad \quad \quad \underline{50} \\ \quad \quad \quad = \$ 67.31 \end{array} \quad \begin{array}{r} \textcircled{2} \quad 1275.00 \\ \quad \quad \quad - 67.31 \\ \quad \quad \quad \hline \quad \quad \quad 1207.69 \end{array} \quad \begin{array}{r} \textcircled{3} \quad 1207.69 \\ \quad \quad \quad \times 0.0495 \\ \quad \quad \quad \hline \quad \quad \quad \boxed{\$ 59.78} \end{array}$$

If John pays union dues of \$35 and pension dues of \$150, what are his total before tax deductions.

$$\begin{aligned} \text{BTD} &= \$35 + \$150 \\ &= \$185.00 \end{aligned}$$

Calculate John's taxable gross. (Gross Pay - BTD)

$$\begin{aligned} \text{Taxable Gross} &= \$1275.00 - \$185.00 \\ &= \$1090.00 \end{aligned}$$

Calculate John's Federal and Provincial tax contributions if he uses claim code 2.

Federal:  
Taxable Gross: 1090.00  
Claim Code: 2  
(50 Pay Periods)

$$\text{Federal: } \underline{\$ 135.65}$$

Provincial:  
Taxable Gross: 1090.00  
Claim Code: 2  
(50 Pay Periods)

$$\text{Provincial: } \underline{\$ 86.80}$$

**Bill's bank offers a simple interest rate of 4% per annum. How much interest would Bill earn on his investment of \$3000 after 9 months.**

Calculate the Interest earned on an initial investment of \$8000.00 if Interest is paid at 3.75% per annum, compounded semi-annually for three years.

## Conversions

a)  $39 \text{ mi} = \underline{\hspace{2cm}} \text{ km}$

b)  $42 \text{ ft} = \underline{\hspace{2cm}} \text{ m}$

Find the volume and surface area

