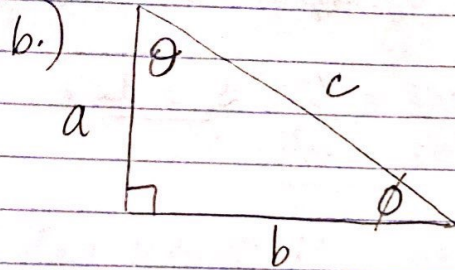


HW 7C: 3, 5, 6, 7

3.) a.) $90 = \theta + \phi \Rightarrow \theta = 90 - \phi$ not an inverse proportion



$$\tan \theta = \frac{b}{a} \neq \tan \phi = \frac{a}{b}$$

$\therefore \tan \theta \cdot \tan \phi = \frac{b}{a} \cdot \frac{a}{b} = 1$ for all values, $a \neq b$. Yes, they are inversely proportional.

5.) $C \propto \frac{1}{t}$, $C = 15$, $t = 6$

a.) C when $t = 18$

t	6	18
C	15	?

$\rightarrow \times 3$

$$t \times 3 \rightarrow C \times \frac{1}{3} \Rightarrow 15 \times \frac{1}{3} = \boxed{5}$$

b.) t when $C = 20$

t	6	
C	15	20

$\rightarrow \times \frac{4}{3}$

$$C \times \frac{4}{3} \rightarrow t \times \frac{3}{4} \Rightarrow 6 \times \frac{3}{4} = \frac{18}{4} = \boxed{4.5}$$

b.) $t \propto \frac{1}{n}$, when $n = 5$, $t = 6$ what is t when $n = 3$?

n	5	3
t	6	?

$\rightarrow \times \frac{3}{5}$

$$n \times \frac{3}{5} \rightarrow t \times \frac{5}{3} \Rightarrow 6 \times \frac{5}{3} = \frac{30}{3} = 10$$

$\therefore \boxed{10 \text{ hours}}$

7.) $A \propto \frac{1}{M}$; when $M = 5 \text{ kg}$, $A = 1.5 \text{ ms}^{-2}$

a.) find A if $M = 2 \text{ kg}$

M	5	2
A	1.5	?

$$M \times \frac{2}{5} \rightarrow A \times \frac{5}{2}$$

$$\therefore \frac{3}{2} \cdot \frac{5}{2} = \frac{15}{4} = \boxed{3.75 \text{ ms}^{-2}}$$

b.) find M if $A = 10 \text{ ms}^{-2}$

M	5	?
A	1.5	10

$$A \times \frac{2}{3} \rightarrow M \times \frac{3}{20}$$

$$\therefore \frac{5 \times 3}{1 \cdot 20} = \frac{15}{20} = \boxed{0.75 \text{ kg}}$$

$$\frac{10}{1.5} = 6 \frac{2}{3} = \frac{20}{3}$$