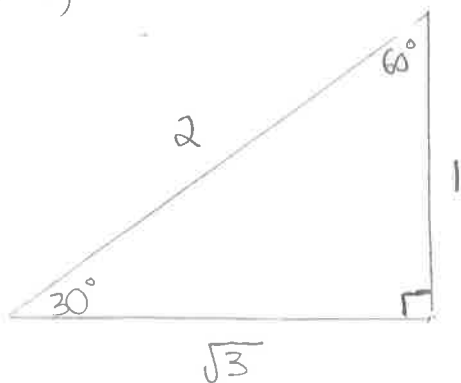
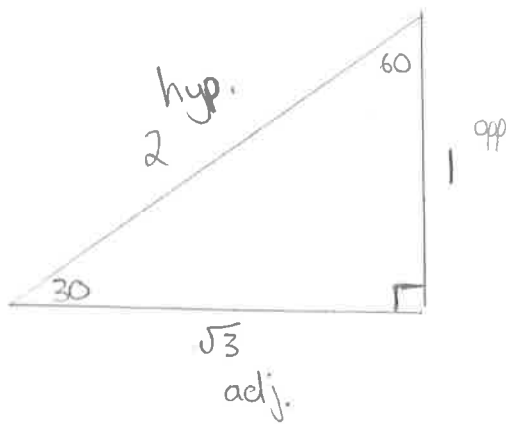


SPECIAL ANGLES I
WORKSHEET SOLUTIONS

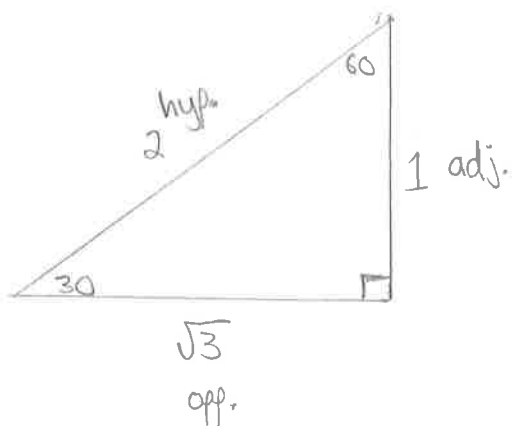
① a)



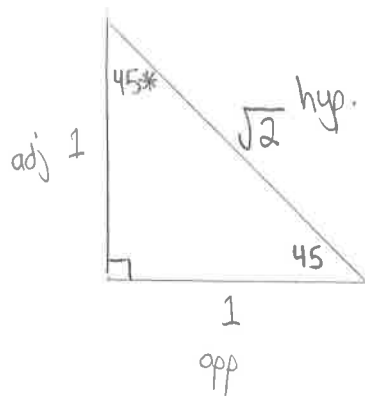
b)



c)



②



③ a) $\sin \theta = \frac{o}{h}$

$\sin 60 = \frac{\sqrt{3}}{2}$

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

$\cos 30 = \frac{\sqrt{3}}{2}$

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

$\tan 45 = \frac{1}{1}$

$\tan 45 = 1$

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

$\cos 45 = \frac{1}{\sqrt{2}}$

$$\textcircled{4} \text{ a) } \sin 30 \times \tan 60 - \cos 30$$

$$= \frac{1}{2} \times \sqrt{3} - \frac{\sqrt{3}}{2}$$

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

$$= 0$$

$$\text{b) } 1 - \frac{\sin 45}{\cos 45}$$

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

$$= 1 - 1$$

$$= 0$$

$$\textcircled{5} \text{ a) } \theta = 30 ; \sin^2 \theta + \cos^2 \theta = 1$$

$$\sin^2(30) + \cos^2(30) = 1$$

$$\left(\frac{1}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 = 1$$

$$\frac{1}{4} + \frac{3}{4} = 1$$

$$\frac{4}{4} = 1$$

$$1 = 1$$

$$\text{b) } \sin^2(45) + \cos^2(45) = 1$$

$$\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2 = 1$$

$$\frac{1}{2} + \frac{1}{2} = 1$$

$$1 = 1$$

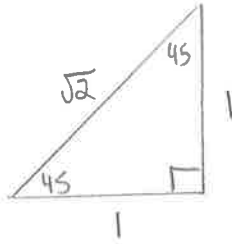
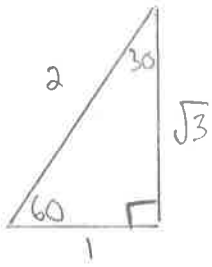
$$\text{c) } \sin^2(60) + \cos^2(60) = 1$$

$$\left(\frac{\sqrt{3}}{2}\right)^2 + \left(\frac{1}{2}\right)^2 = 1$$

$$\frac{3}{4} + \frac{1}{4} = 1$$

$$\frac{4}{4} = 1$$

$$1 = 1$$

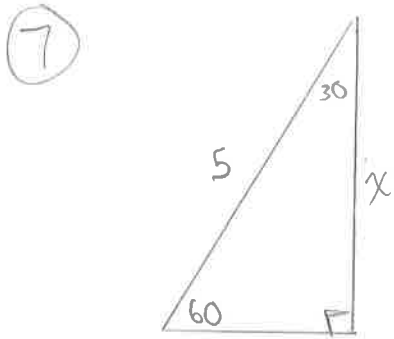


⑥ a) $\sin \theta = \frac{\sqrt{3}}{2}$
 $\theta = 60^\circ$

b) $\sqrt{3} \tan \theta = 1$
 $\tan \theta = \frac{1}{\sqrt{3}}$
 $\theta = 30^\circ$

c) $2\sqrt{2} \cos \theta = 2$
 $\cos \theta = \frac{1}{\sqrt{2}}$
 $\theta = 45^\circ$

d) $2 \cos \theta = \sqrt{3}$
 $\cos \theta = \frac{\sqrt{3}}{2}$
 $\theta = 30^\circ$



$$\cos 30 = \frac{x}{5}$$

from special triangle: $\cos 30 = \frac{\sqrt{3}}{2}$

$$\frac{x}{5} = \frac{\sqrt{3}}{2}$$

$$x = \frac{5\sqrt{3}}{2} \text{ m}$$

⑧ a) $\frac{3\sqrt{2}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$
 $= \frac{3\sqrt{10}}{5}$

b) $\frac{6\sqrt{5}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$
 $= \frac{6\sqrt{15}}{3}$
 $= 2\sqrt{15}$

c) $\frac{4-5\sqrt{3}}{1+\sqrt{2}} \cdot \frac{1-\sqrt{2}}{1-\sqrt{2}}$
 $= \frac{4-4\sqrt{2}-5\sqrt{3}+5\sqrt{6}}{1-2}$
 $= \frac{4-4\sqrt{2}-5\sqrt{3}+5\sqrt{6}}{-1}$
 $= -4+4\sqrt{2}+5\sqrt{3}-5\sqrt{6}$

