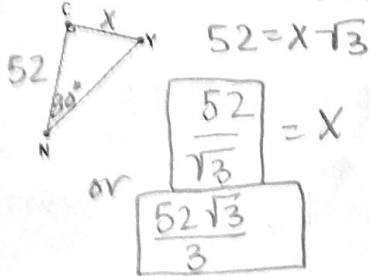


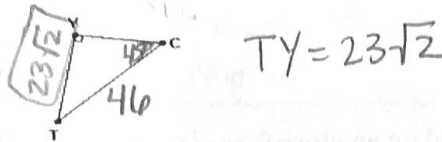
Right Triangle Trig Practice

THIS IS TO BE DONE ENTIRELY NON-CALCULATOR (however, you may use one to check your answers)
Find the EXACT value of x .

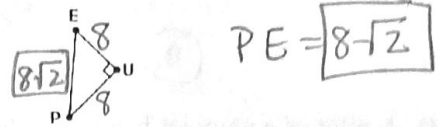
1) $\angle N = 30^\circ$, $NC = 52$, $CY = x$



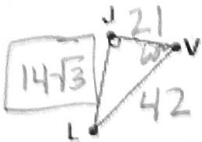
2) $\angle C = 45^\circ$, $TC = 46$, $TY = x$



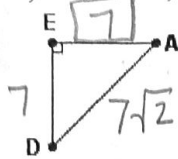
3) $\angle E = 45^\circ$, $PU = 8$, $PE = x$



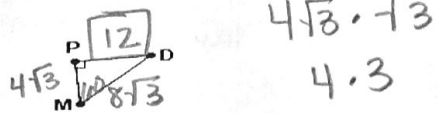
4) $\angle V = 60^\circ$, $LV = 42$, $LJ = x$



5) $\angle A = 45^\circ$, $AD = 7\sqrt{2}$, $AE = x$



6) $\angle M = 60^\circ$, $PM = 4\sqrt{3}$, $PD = x$



7) Which of the following is a Pythagorean Triple? (Can be more than one answer)

All of them

A. 7-24-25

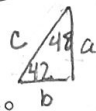
B. 6-8-10

C. 5-12-13

D. 8-15-17

E. 9-40-41

8) Which of the following is equivalent to $\cos 42^\circ$?



$\cos 42^\circ = \frac{b}{c}$

A. $\sin 48^\circ$

~~B. $\sin 42^\circ$~~

~~C. $\csc 42^\circ$~~

~~D. $\cos 48^\circ$~~

~~E. $\sec 48^\circ$~~

$\sin A = \frac{a}{c}$ $\cos C = \frac{a}{b}$

9) For $\triangle ABC$, with hypotenuse AC , if $\sin A = 0.6428$, then $\cos C$ is _____

A. $1 + 0.6428$

B. $1 - 0.6428$

C. 0.6428

D. $90^\circ - 0.6428$

E. $180^\circ - 0.6428$

10) Using the diagram below find the balloon's height, h , above the ground.

A. $106\cos(37^\circ)$

B. $106\tan(37^\circ)$

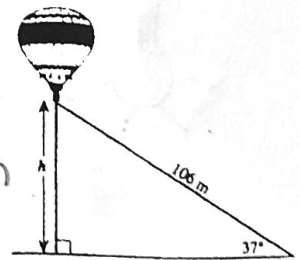
C. $106\div\sin(37^\circ)$

D. $\sin(37^\circ)\div 106$

E. $106\sin(37^\circ)$

$\sin 37^\circ = \frac{h}{106}$

$106\sin 37^\circ = h$



11) A 5.5-m ladder is resting against a wall. If the ladder makes an angle of 60° with the ground, how far from the wall is the base of the ladder, and how high up the wall does the ladder reach?

A. 2.75m from the wall

and $2.75\sqrt{3}$ m up the wall

B. $2.75\sqrt{3}$ m from the wall

and 2.75m up the wall

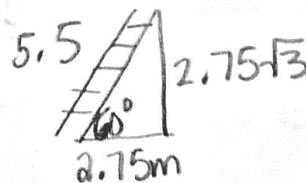
C. 2.75m from the wall

and $2.75\sqrt{2}$ m up the wall

D. $2.75\sqrt{2}$ m from the wall

and 2.75m up the wall

E. None of these



12) An underground parking lot is being constructed 8m below ground level. If the exit ramp is to rise at an angle of 15° , how long will the ramp be?

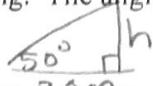
- A. $8 \div \tan(15^\circ)$ B. $8 \tan(15^\circ)$ **C. $8 \div \sin(15^\circ)$** D. $\sin(15^\circ) + 8$ E. $8 \sin(15^\circ)$

$$X = \frac{8}{\sin 15^\circ} \quad \sin 15^\circ = \frac{8}{X}$$



13) The shadow of a tree is 20m long. The angle of elevation to the top of the tree is 50° . What is the height of the tree?

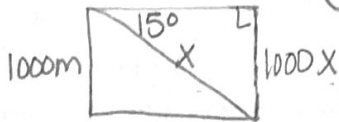
- A. $20 \div \tan(50^\circ)$ **B. $20 \tan(50^\circ)$** C. $20 \div \sin(50^\circ)$ D. $\tan(50^\circ) + 20$ E. $20 \sin(50^\circ)$



$$\tan 50^\circ = \frac{h}{20}$$

14) A pilot of a navy jet is about to land on an aircraft carrier. At an altitude of 1000m above the carrier's deck, the pilot observes the carrier at an angle of depression of 15° . Calculate the exact distance that the jet will fly on its landing descent to the carrier.

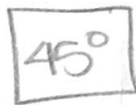
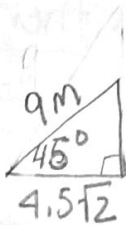
- A. $1000 \div \tan(15^\circ)$ B. $1000 \tan(15^\circ)$ **C. $1000 \div \sin(15^\circ)$** D. $\tan(15^\circ) + 1000$ E. $1000 \sin(15^\circ)$



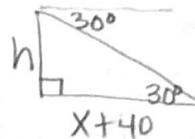
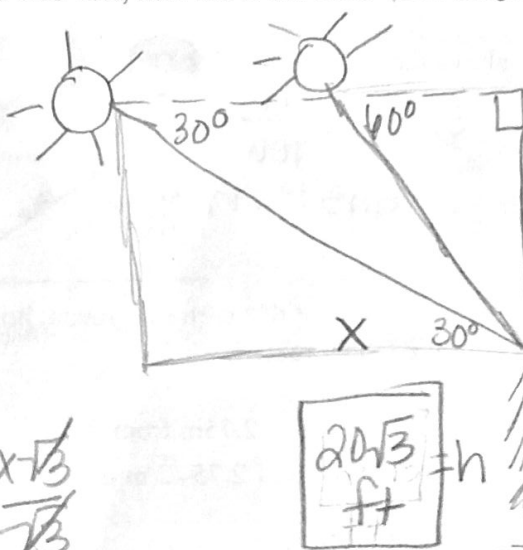
$$\sin 15^\circ = \frac{1000}{X}$$

$$X = \frac{1000}{\sin 15^\circ}$$

15) The base of a 9.0m ladder is $4.5\sqrt{2}$ m from the wall of a building. What is the angle of elevation of the ladder? (Draw a diagram and solve)



16) I measured the length of a tree's shadow twice today. Once when the angle of depression from the sun to the top of the tree was 30° and once when it was 60° . If the difference in the length of the two shadows I measured was 40ft, how tall is the tree? (Draw a diagram and solve)



$$\tan 30^\circ = \frac{h}{X+40} \quad \tan 60^\circ = \frac{h}{x}$$

$$x \tan 30^\circ + 40 \tan 30^\circ = h \quad x \tan 60^\circ = h$$

$$x \cdot \frac{1}{\sqrt{3}} + 40 \cdot \frac{1}{\sqrt{3}} = h \quad x \cdot \sqrt{3} = h$$

$$\frac{x+40}{\sqrt{3}} = h \quad x\sqrt{3} = h$$

$$\frac{x+40}{\sqrt{3}} = x\sqrt{3}$$

$$x+40 = 3x$$

$$40 = 2x$$

$$20 = x$$

$$60 = \frac{x\sqrt{3}}{\sqrt{3}}$$

$$\frac{60\sqrt{3}}{3} = 20\sqrt{3}$$

