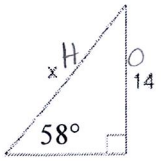
Unit 3 Review for Test

Name_____ Date_____

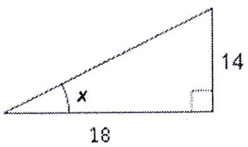
1. Solve for x. Label O, H, A. Show trig equation. Round to the nearest tenth.



$\sin(58) = \frac{14}{x}$

$x = \frac{14}{\sin(58)} \approx 16.5$

2. Find the measure of angle x. Label O, H, A. Show trig equation. Round your answer to the nearest degree.

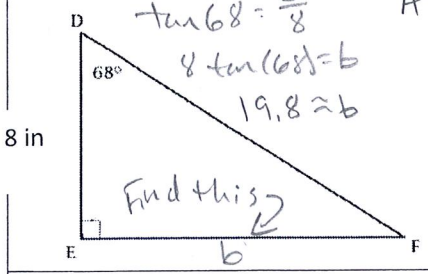


$\tan x = \frac{14}{18}$

$\tan^{-1}\left(\frac{14}{18}\right) = x$

$37.9° \approx x$

3. Triangle DEF is a right triangle with right angle$E$, as shown. What is the area of triangle DEF? $A = \frac{1}{2}bh$?



$\tan 68 = \frac{b}{8}$

$8\tan(68) = b$

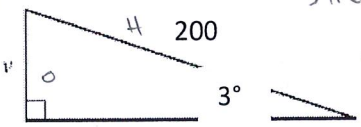
$19.8 \approx b$

Find this

$A = \frac{1}{2}(19.8)(8)$

$\boxed{= 79.2}$

4. A road ascends a hill at an angle of 3°. For every 200 feet of road, how many feet, v, does the road ascend? Round your answer to the nearest foot.\



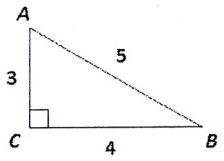
$\sin(3) = \frac{v}{200}$

$200\sin(3) = v$

$10.467 \approx v$

$\boxed{10 \text{ feet}}$

5. Given triangle ABC, what is $m\angle B$ to the nearest degree?

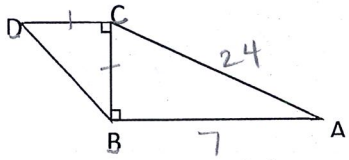


$\sin(B) = \frac{3}{5}$

$\sin^{-1}(3/5) = B$

$36.9° \approx B$

6. In ΔABC, shown below, the measure of ∠ABC = 90°, AB = 7, AC = 24. What is the length of BD in ΔBCD, if BC = CD and $\overline{BC} \perp \overline{CD}$?



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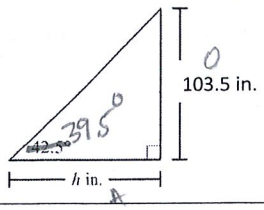
7. According to building codes, the maximum angle of ascent for a staircase in a home is 39.5°. To get from the first floor to the second floor in a new home, a staircase will have a total vertical distance of 103.5 inches. What is the minimum horizontal distance, to the nearest inch, needed for the staircase?



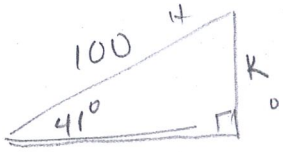
$\tan(39.5) = \frac{103.5}{h}$

$h = \frac{103.5}{\tan(39.5)}$

$h \approx 125.6$

≈ 126 inches

8. A kite string is 100 feet long from the kite to the ground. The string makes a 41° angle with the ground. To the nearest foot, how high off the ground is the kite?



$\sin(41) = \frac{K}{100}$

$100\sin(41) = K$

65.6 ft of the ground

9. In $\triangle RST$, $m\angle R + m\angle T = 90°$ and $\cos R = \frac{\sqrt{3}}{2}$, then sin T = $\sqrt{3}/2$.

SAME !!

10. In $\triangle ABC$, $\angle A$ and $\angle B$ are complementary angles. Sin A = Cos B

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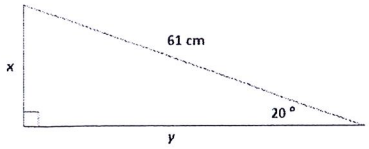
11. Find x and y.



$\sin 20 = \frac{x}{61}$

$x = 61 \cdot \sin(20)$

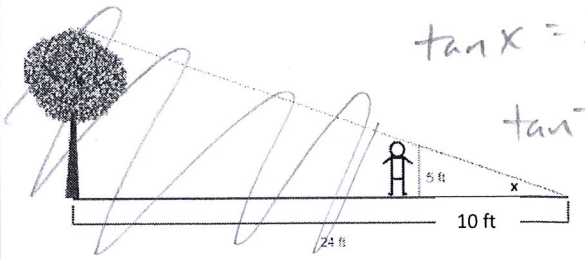
≈ 20.9

$\cos 20 = \frac{y}{61}$

$y = 61\cos(20)$

≈ 57.3

12. Find the value of *x*.

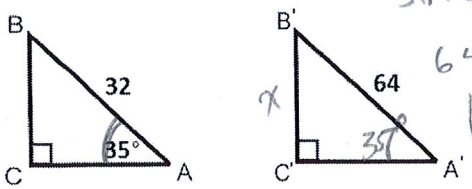


$\tan x = \frac{5}{10}$

$\tan^{-1}\left(\frac{5}{10}\right) = x$

$26.6^\circ \approx x$

13. Triangle ABC is similar to triangle A'B'C'. To the nearest tenth, what is the length of $\overline{B'C'}$?



$\sin(35) = \frac{x}{64}$

$64\sin(35) = x$

$\boxed{36.7 \approx x}$

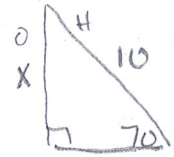
No Calculator Can you do this with no calc?? I think you can!

1. In a right triangle, *A* and B are acute angles. If $\sin A = \frac{7}{24}$, what is $\cos B$?

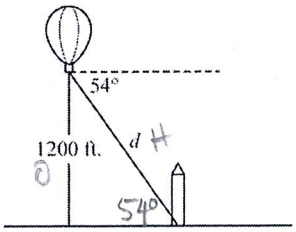
$\boxed{\cos B = \frac{7}{24}}$

2. A ~~12~~ 10-foot ladder is leaning against a building at a 70° angle with the ground. Which can be used to find how high the ladder reaches up the side of the building?

a. $\sin 70° = \frac{10}{x}$ b. $\tan 70° = \frac{10}{x}$ c. $\cos 70° = \frac{x}{10}$ $\boxed{\text{d. } \sin 70° = \frac{x}{10}}$



3. A hot air balloon is 1200 feet above the ground. The angle of depression from the basket of the hot air balloon to the base of a monument is 54°.



$\sin\theta = \frac{O}{H}$

Which equation can be used to find the distance, *d*, in feet, from the basket of the hot air balloon to the base of the monument?

a. $\sin 54° = \frac{d}{1200}$ $\boxed{\text{b. } \sin 54° = \frac{1200}{d}}$ c. $\cos 54° = \frac{d}{1200}$ d. $\cos 54° = \frac{1200}{d}$

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4. Angle J and angle K are complementary angles in a right triangle. The value of $\tan J$ is $\frac{8}{6}$. What is the value of $\sin J$?

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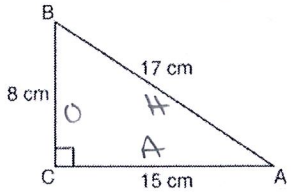
a. $\frac{15}{25}$ b. $\frac{15}{20}$ c. $\frac{25}{20}$ d. $\frac{20}{25}$

5. Which is true?

a. $\cos 30° = \sin 150°$
b. $\cos 60° = \sin 60°$
c. $\cos 30° = \cos 60°$
d. $\cos 30° = \sin 60°$

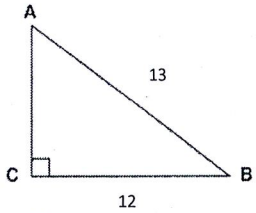
Cos of an ∡ = Sin of its complement

6. Which equation shows a correct trigonometric ratio for angle A in the right triangle below?



a. $\cos A = \frac{15}{17}$ b. $\tan A = \frac{8}{17}$ c. $\tan A = \frac{15}{8}$ d. $\sin A = \frac{15}{17}$

7. Which equation could be used to find the measure of one acute angle in the right triangle shown below?



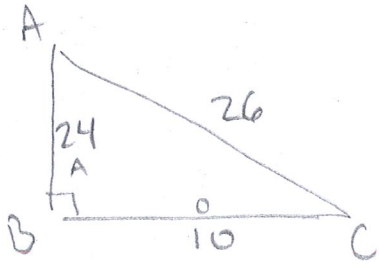
a. $\sin A = \frac{12}{13}$ b. $\tan A = \frac{13}{12}$ c. $\cos B = \frac{13}{12}$ $\frac{12}{13}$ d. $\tan B = \frac{13}{12}$

8. In triangle ABC, the measure of $\angle B = 90^o$, $AC = 26$, $AB = 24$, and $BC = 10$. Which ratio represents the tangent of $\angle A$?

Key!

Draw it!

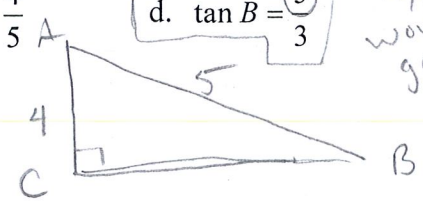
a. $\frac{10}{26}$ b. $\frac{24}{26}$ c. $\frac{10}{24}$ d. $\frac{24}{10}$



9. In triangle ABC, $m\angle C = 90^0$. If $AB = 5$ and $AC = 4$, which statement is *not* true?

a. $\cos A = \frac{4}{5}$ b. $\tan A = \frac{3}{4}$ c. $\sin B = \frac{4}{5}$ d. $\tan B = \frac{5}{3}$

Hyp wouldn't go in Tan



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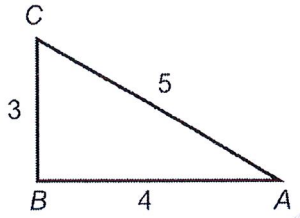
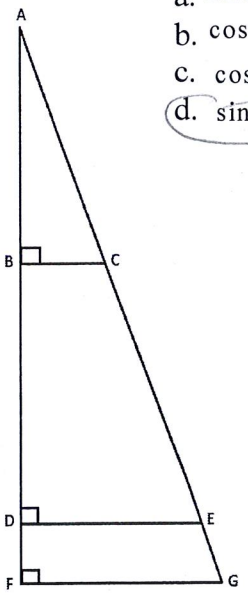
10. Using the right triangle below, which trigonometric value is equivalent to $\frac{12}{20}$? Same as 3/5



Sin A = 3/5
Cos C = 3/5

a. $\cos A$ b. $\sin A$ c. $\sin C$ d. $\tan C$

11. Using the right triangle below, which of the following is **not** true?

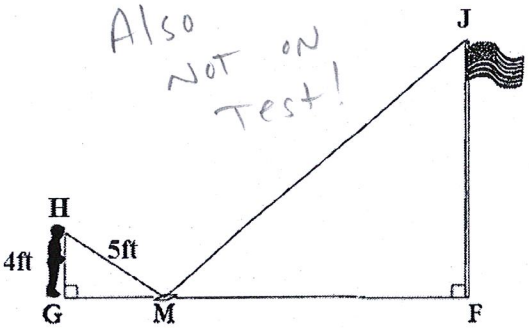


a. $\triangle ABC \sim \triangle ADE \sim \triangle AFG$ ✓
b. $\cos \angle BAC = \sin \angle AED$ ✓
c. $\cos \angle ACB = \cos \angle AED$ ✓
d. $\sin \angle DAE = \sin \angle AGF$ ✗

Not on Test

12. In the diagram below, $\triangle HGM \sim \triangle JFM$. what ratio represents the sine of $\angle J$?

Also NOT ON Test!



Sin J = Sin H
So 3/5