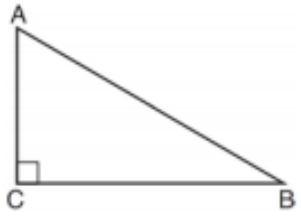
Name: _____ 10/23/2017

Cofunction Rule

1 In scalene triangle ABC shown in the diagram below, $m\angle C = 90°$.



Which equation is always true?

1) $\sin A = \sin B$
2) $\cos A = \cos B$
3) $\cos A = \sin C$
4) $\sin A = \cos B$

2 In $\triangle ABC$, the complement of $\angle B$ is $\angle A$. Which statement is always true?

1) $\tan \angle A = \tan \angle B$
2) $\sin \angle A = \sin \angle B$
3) $\cos \angle A = \tan \angle B$
4) $\sin \angle A = \cos \angle B$

3 Which expression is always equivalent to $\sin x$ when $0° < x < 90°$?

1) $\cos(90° - x)$
2) $\cos(45° - x)$
3) $\cos(2x)$
4) $\cos x$

4 In right triangle ABC, $m\angle C = 90°$. If $\cos B = \frac{5}{13}$, which function also equals $\frac{5}{13}$?

1) $\tan A$
2) $\tan B$
3) $\sin A$
4) $\sin B$

5 In $\triangle ABC$, where $\angle C$ is a right angle, $\cos A = \frac{\sqrt{21}}{5}$. What is $\sin B$?

1) $\frac{\sqrt{21}}{5}$
2) $\frac{\sqrt{21}}{2}$
3) $\frac{2}{5}$
4) $\frac{5}{\sqrt{21}}$

6 If $\sin 6A = \cos 9A$, then $m\angle A$ is equal to

1) 6
2) 36
3) 45
4) $1\frac{1}{2}$

7 If $\sin 2A = \cos 3A$, then $m\angle A$ is

1) $1\frac{1}{2}$
2) 5
3) 18
4) 36

8 If $\sin(A - 30)° = \cos 60°$, the number of degrees in the measure of angle A is

1) 30
2) 60
3) 90
4) 120

9 Which is a value of x if $\sin 60° = \cos(x + 10)°$?

1) 10°
2) 20°
3) 50°
4) 60°

1) 4 2) 4 3) 1 4) 3 5) 1 6) 1 7) 3 8) 2 9) 2

10 If $\cos(x + 30°) = \sin x$, a measure of angle x is
1) 15°
2) 30°
3) 45°
4) 60°

11 If $\sin(x + 20°) = \cos x$, the value of x is
1) 35°
2) 45°
3) 55°
4) 70°

12 In a right triangle, $\sin(40 - x)° = \cos(3x)°$. What is the value of x?
1) 10
2) 15
3) 20
4) 25

13 If $\cos(2x - 1)° = \sin(3x + 6)°$, then the value of x is
1) –7
2) 17
3) 35
4) 71

14 If $\sin(x - 3)° = \cos(2x + 6)°$, then the value of x is
1) –9
2) 26
3) 29
4) 64

15 Which value of x satisfies the equation $\sin(3x + 5)° = \cos(4x + 1)°$?
1) 30
2) 24
3) 12
4) 4

16 If $\cos 72° = \sin x$, find the number of degrees in the measure of acute angle x.

17 Find the value of R that will make the equation $\sin 73° = \cos R$ true when $0° < R < 90°$. Explain your answer.

18 If $3x$ is the measure of a positive acute angle and $\cos 3x = \sin 60°$, find the value of x.

19 If x is a positive acute angle and $\sin x = \cos(x + 20°)$, find the value of x.

20 If $\cos(2x - 25)° = \sin 55°$, find the value of x.

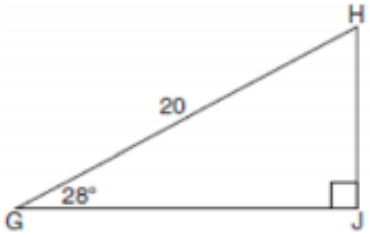
21 If $\sin(2x + 20)° = \cos 40°$, find x.

22 Find the value of acute angle A if $\frac{\sin A}{\cos 50°} = 1$.

23 In right triangle ABC with the right angle at C, $\sin A = 2x + 0.1$ and $\cos B = 4x - 0.7$. Determine and state the value of x. Explain your answer.

24 Explain why $\cos(x) = \sin(90 - x)$ for x such that $0 < x < 90$.

25 When instructed to find the length of $\overline{HJ}$ in right triangle HJG, Alex wrote the equation $\sin 28° = \frac{HJ}{20}$ while Marlene wrote $\cos 62° = \frac{HJ}{20}$. Are both students' equations correct? Explain why.



10) 2 11) 1 12) 4 13) 2 14) 3 15) 3 16) x=18 17) R=17 18) x=10
19) x=35 20) x=30 21) x=15 22) A=40 23) x=0.4