

Name:

Partners:

Math Academy 1

Date:

Review 4 Version A

[A] Circle whether each statement is true or false.

T F 1. $\sin A$ is the inverse of $\cos A$.

T F 2. $\sin A$ is the inverse of $\csc A$.

T F 3. $\sin A$ is the inverse of $\sin^{-1} A$.

T F 4. $\sin A$ is the reciprocal of $\cos A$.

T F 5. $\sin A$ is the reciprocal of $\csc A$.

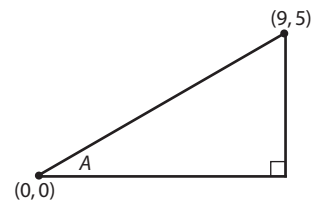
T F 6. $\sin A$ is the reciprocal of $\sin^{-1} A$.

T F 7. 45 is in the range of $f(x) = \sin x$.

T F 8. In the triangle at right, $\tan A = \frac{5}{9}$.

T F 9. In triangle HTU , $\cos T = \frac{h}{u}$ only if U is a right angle.

T F 10. In a 30° right triangle, the hypotenuse is always twice as long as the shorter leg.



[B] Choose a value or expression from the list that is equivalent to each expression stated, if possible.

1. $\sin Q$

2. $\sec Q$

3. $\cos^{-1} Q$

4. $\arctan \frac{d}{q}$

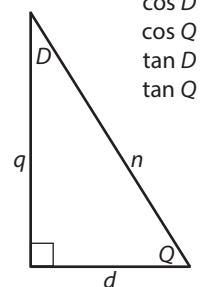
4. $\sin Q - \cos D$

6. $\sin^{-1} \frac{d}{n} + \cos^{-1} \frac{d}{n}$

7. $\sin Q \div \cos Q$

8. $(\sin Q)^2 + (\cos Q)^2$

- 0
- 1
- D
- Q
- $\frac{d}{q}$
- $\frac{q}{d}$
- $\frac{q}{n}$
- $\frac{n}{q}$
- $\frac{d}{n}$
- $\frac{n}{d}$
- 90°
- $\sin D$
- $\sin Q$
- $\cos D$
- $\cos Q$
- $\tan D$
- $\tan Q$



[C] For each of the following, write the value of A , or write a complete sentence explaining why the equation is not possible.

1. $\sin A = 2$

2. $\cot A = 2$

3. $\sec A = 2$

4. $\tan A = 2^\circ$

[D] Make a sketch that is approximately to scale, and then solve. Show all steps, including trig equations and inverse trig functions, using equations only.

1. Find g in a triangle with $B = 90^\circ$, $G = 40^\circ$, and $r = 12$.

2. What is the length of the shadow of a 7 meter building when the sun is 28° above the horizon?

3. A ramp consisting of an 8-foot sheet of plywood rises 1 foot. At what angle does the ramp rise?

[E] Optional. Use the definitions to simplify. $\sin^2 A$ means $(\sin A)^2$.

1. $(\cos A)(\tan A)$

2. $\sin^2 A + \cos^2 A$

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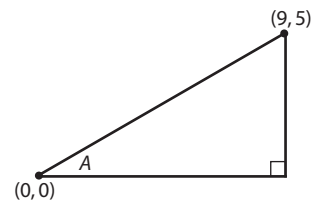
T F 6. $\sin A$ is the reciprocal of $\sin^{-1} A$.

T F 7. 45 is in the range of $f(x) = \sin x$.

T F 8. In the triangle at right, $\tan A = \frac{5}{9}$.

T F 9. In triangle HTU , $\cos T = \frac{h}{u}$ only if U is a right angle.

T F 10. In a 30° right triangle, the hypotenuse is always twice as long as the shorter leg.



[B] Choose a value or expression from the list that is equivalent to each expression stated, if possible.

1. $\sin Q$

2. $\sec Q$

3. $\cos^{-1} Q$

4. $\arctan \frac{d}{q}$

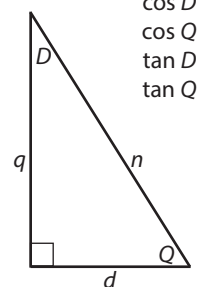
4. $\sin Q - \cos D$

6. $\sin^{-1} \frac{d}{n} + \cos^{-1} \frac{d}{n}$

7. $\sin Q \div \cos Q$

8. $(\sin Q)^2 + (\cos Q)^2$

- 0
- 1
- D
- Q
- $\frac{d}{q}$
- $\frac{q}{d}$
- $\frac{q}{n}$
- $\frac{n}{q}$
- $\frac{d}{n}$
- $\frac{n}{d}$
- 90°
- $\sin D$
- $\sin Q$
- $\cos D$
- $\cos Q$
- $\tan D$
- $\tan Q$



[C] For each of the following, write the value of A , or write a complete sentence explaining why the equation is not possible.

1. $\cos A = 2$

2. $\tan A = 2$

3. $\csc A = 2$

4. $\cot A = 2^\circ$

[D] Make a sketch that is approximately to scale, and then solve. Show all steps, including trig equations and inverse trig functions, using equations only.

1. Find g in a triangle with $B = 90^\circ$, $G = 10^\circ$, and $r = 75$.

2. What is the length of the shadow of a 7.2 meter building when the sun is 18° above the horizon?

3. A ramp is 12 feet long and covers a horizontal distance of 11.2 feet. At what angle does the ramp rise?

[E] Optional. Use the definitions to simplify. $\sin^2 A$ means $(\sin A)^2$.

1. $\frac{\sin A}{\cos A}$

2. $\sin^2 A + \cos^2 A$

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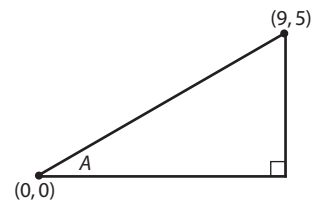
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T F 10. In a 30° right triangle, the hypotenuse is always twice as long as the shorter leg.



[B] Choose a value or expression from the list that is equivalent to each expression stated, if possible.

1. $\sin Q$

2. $\sec Q$

3. $\cos^{-1} Q$

4. $\arctan \frac{d}{q}$

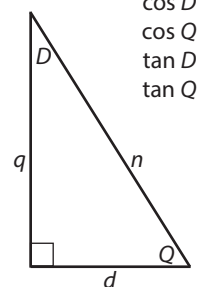
4. $\sin Q - \cos D$

6. $\sin^{-1} \frac{d}{n} + \cos^{-1} \frac{d}{n}$

7. $\sin Q \div \cos Q$

8. $(\sin Q)^2 + (\cos Q)^2$

- 0
- 1
- D
- Q
- $\frac{d}{q}$
- $\frac{q}{d}$
- $\frac{q}{n}$
- $\frac{n}{q}$
- $\frac{d}{n}$
- $\frac{n}{d}$
- 90°
- $\sin D$
- $\sin Q$
- $\cos D$
- $\cos Q$
- $\tan D$
- $\tan Q$



[C] For each of the following, write the value of A , or write a complete sentence explaining why the equation is not possible.

1. $\sin A = 0.4$

2. $\cot A = 0.4$

3. $\sec A = 0.4$

4. $\tan A = 0.4^\circ$

[D] Make a sketch that is approximately to scale, and then solve. Show all steps, including trig equations and inverse trig functions, using equations only.

1. Find b in a triangle with $B = 90^\circ$, $G = 40^\circ$, and $r = 12$.

2. What is the length of the shadow of a 5.2 meter building when the sun is 8.1° above the horizon?

3. A 15-foot ramp is 22 inches higher on one side than the other. At what angle does the ramp rise?

[E] Optional. Use the definitions to simplify. $\sin^2 A$ means $(\sin A)^2$.

1. $\frac{\cos A}{\sin A}$

2. $\sec^2 A - \tan^2 A$

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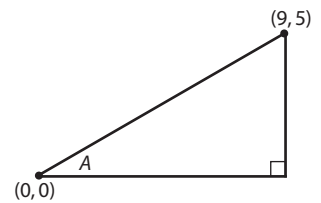
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[B] Choose a value or expression from the list that is equivalent to each expression stated, if possible.

1. $\sin Q$

2. $\sec Q$

3. $\cos^{-1} Q$

4. $\arctan \frac{d}{q}$

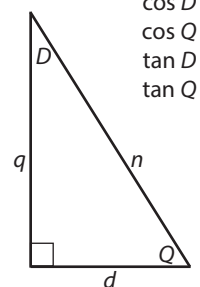
4. $\sin Q - \cos D$

6. $\sin^{-1} \frac{d}{n} + \cos^{-1} \frac{d}{n}$

7. $\sin Q \div \cos Q$

8. $(\sin Q)^2 + (\cos Q)^2$

- 0
- 1
- D
- Q
- $\frac{d}{q}$
- $\frac{q}{d}$
- $\frac{q}{n}$
- $\frac{n}{q}$
- $\frac{d}{n}$
- $\frac{n}{d}$
- 90°
- $\sin D$
- $\sin Q$
- $\cos D$
- $\cos Q$
- $\tan D$
- $\tan Q$



[C] For each of the following, write the value of A , or write a complete sentence explaining why the equation is not possible.

1. $\cos A = 0.4$

2. $\tan A = 0.4$

3. $\csc A = 0.4$

4. $\cot A = 0.4^\circ$

[D] Make a sketch that is approximately to scale, and then solve. Show all steps, including trig equations and inverse trig functions, using equations only.

1. Find b in a triangle with $B = 90^\circ$, $G = 10^\circ$, and $r = 75$.

2. What is the length of the shadow of a 15.5 meter building when the sun is 1.6° below high noon?

3. A ramp rises 11 cm for every meter of horizontal distance traveled. At what angle does the ramp rise?

[E] Optional. Use the definitions to simplify. $\sin^2 A$ means $(\sin A)^2$.

1. $\frac{1}{1 + \sin x} + \frac{1}{1 + \csc x}$

2. $\csc^2 A - 1$