Question ID 3eb56220

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 3eb56220

In triangle XYZ, angle Y is a right angle, the measure of angle Z is 33°, and the length of $\overline{YZ}$ is 26 units. If the area, in square units, of triangle XYZ can be represented by the expression $k \tan 33^\circ$, where k is a constant, what is the value of k?

Question ID 630ce120

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 630ce120

The length of a rectangle's diagonal is $3\sqrt{17}$, and the length of the rectangle's shorter side is 3. What is the length of the rectangle's longer side?

Question ID 4ce3d4ed

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 4ce3d4ed

A rectangle is inscribed in a circle, such that each vertex of the rectangle lies on the circumference of the circle. The diagonal of the rectangle is twice the length of the shortest side of the rectangle. The area of the rectangle is $1{,}089\sqrt{3}$ square units. What is the length, in units, of the diameter of the circle?

Question ID 0d4eba4d

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 0d4eba4d

One leg of a right triangle has a length of 43.2 millimeters. The hypotenuse of the triangle has a length of 196.8 millimeters. What is the length of the other leg of the triangle, in millimeters?

A. 43.2

B. 120

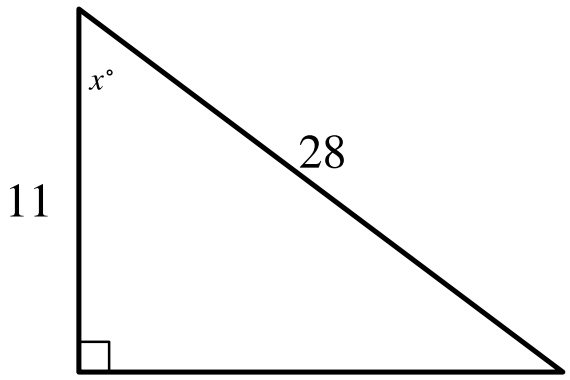
C. 192

D. 201.5

Question ID b9d89675

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: b9d89675



Note: Figure not drawn to scale.

In the triangle shown, what is the value of $\cos x^\circ$?

Question ID 3224f1ad

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 3224f1ad

The perimeter of an equilateral triangle is 852 centimeters. The three vertices of the triangle lie on a circle. The radius of the circle is $w\sqrt{3}$ centimeters. What is the value of w?

Question ID dec3599b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: dec3599b

For two acute angles, $\angle Q$ and $\angle R$, $\cos(Q) = \sin(R)$. The measures, in degrees, of $\angle Q$ and $\angle R$ are $x + 61$ and $4x + 4$, respectively. What is the value of x?

A. 5

B. 19

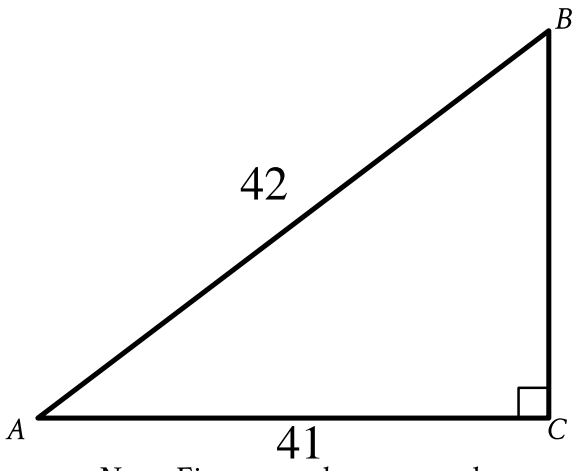
C. 23

D. 29

Question ID 8dfac8be

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 8dfac8be



Note: Figure not drawn to scale.

What is the value of $\cos A$ in the triangle shown?

A. $\frac{42}{41}$

B. $\frac{41}{42}$

C. $\frac{1}{42}$

D. $\frac{1}{41}$

Question ID 63fcb9eb

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 63fcb9eb

The length of a rectangle's diagonal is $5\sqrt{17}$, and the length of the rectangle's shorter side is 5. What is the length of the rectangle's longer side?

A. $\sqrt{17}$

B. 20

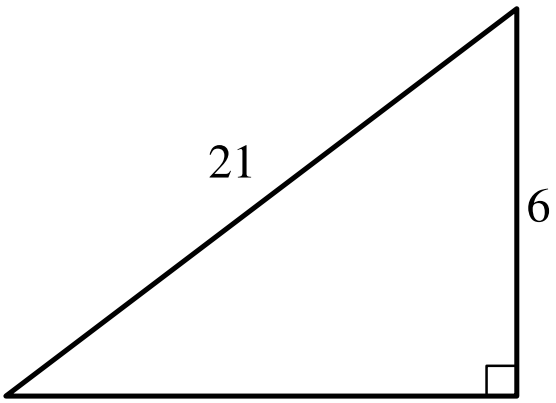
C. $15\sqrt{2}$

D. 400

Question ID 66b3574c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 66b3574c



Note: Figure not drawn to scale.

For the triangle shown, which expression represents the value of a?

A. $\sqrt{21^2 - 6^2}$

B. $21^2 - 6^2$

C. $\sqrt{21 - 6}$

D. $21 - 6$

Question ID 0e9cca7f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 0e9cca7f

In triangle XYZ, angle Z is a right angle and the length of $\overline{YZ}$ is 24 units. If $\tan X = \frac{12}{35}$, what is the perimeter, in units, of triangle XYZ?

A. 188

B. 168

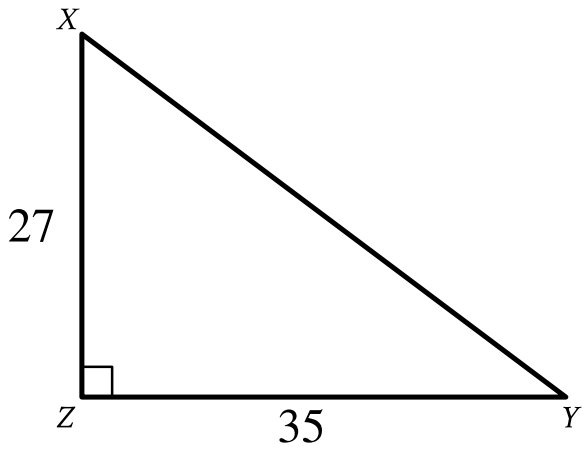
C. 84

D. 71

Question ID 878956b3

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 878956b3



Note: Figure not drawn to scale.

Triangle XYZ shown is a right triangle. Which of the following has the same value as $\sin X$?

A. $\tan X$

B. $\tan Y$

C. $\cos X$

D. $\cos Y$

Question ID 23fc2b60

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 23fc2b60

In $\triangle ABC$, $\angle B$ is a right angle and the length of $\overline{BC}$ is 136 millimeters. If $\cos A = \frac{3}{5}$, what is the length, in millimeters, of $\overline{AB}$?

A. 34

B. 102

C. 136

D. 170

Question ID 331017d5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 331017d5

A right triangle has legs with lengths of 28 centimeters and 20 centimeters. What is the length of this triangle's hypotenuse, in centimeters?

A. $8\sqrt{6}$

B. $4\sqrt{74}$

C. 48

D. $1{,}184$

Question ID 08db26b7

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 08db26b7

The perimeter of an isosceles right triangle is $18 + 18\sqrt{2}$ inches. What is the length, in inches, of the hypotenuse of this triangle?

A. 9

B. $9\sqrt{2}$

C. 18

D. $18\sqrt{2}$

Question ID 0ef6cdb0

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 0ef6cdb0

A right triangle has legs with lengths of 24 centimeters and 21 centimeters. If the length of this triangle's hypotenuse, in centimeters, can be written in the form $3\sqrt{d}$, where d is an integer, what is the value of d?

Question ID 02210929

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 02210929

Which of the following expressions is equivalent to $(\sin 24^\circ)(\cos 66^\circ) + (\cos 24^\circ)(\sin 66^\circ)$?

A. $2(\cos 66^\circ)(\sin 24^\circ)$

B. $2(\cos 66^\circ) + 2(\cos 24^\circ)$

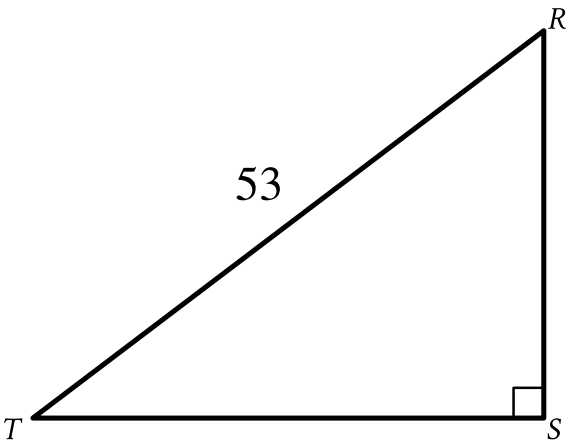
C. msup $+ (\cos 24^\circ)^2$

D. msup $+ (\sin 24^\circ)^2$

Question ID d34d8b08

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: d34d8b08



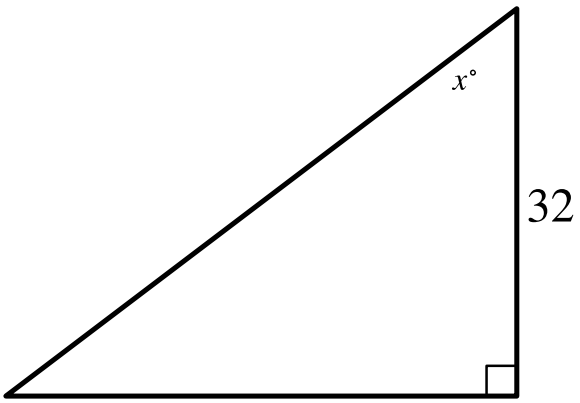
Note: Figure not drawn to scale.

In the triangle shown, $RS = \sqrt{105}$. What is the value of $\sin R$?

Question ID e292a69b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: e292a69b



Note: Figure not drawn to scale.

In the triangle shown, what is the value of x?

Question ID 3740eab2

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 3740eab2

In triangle ABC, angle B is a right angle. The length of side AB is $10\sqrt{37}$ and the length of side BC is $24\sqrt{37}$. What is the length of side AC?

A. $14\sqrt{37}$

B. $26\sqrt{37}$

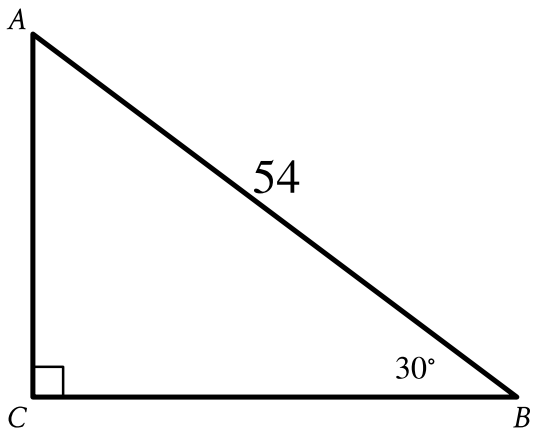
C. $34\sqrt{37}$

D. $\sqrt{34 \cdot 37}$

Question ID 309cf71a

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Geometry and Trigonometry	Right triangles and trigonometry	Hard

ID: 309cf71a



Note: Figure not drawn to scale.

Right triangle ABC is shown. What is the value of $\tan A$?

A. $\frac{\sqrt{3}}{54}$

B. $\frac{1}{\sqrt{3}}$

C. $\sqrt{3}$

D. $27\sqrt{3}$