ID: 669f307b

$$RS = 20$$
$$ST = 48$$
$$TR = 52$$

The side lengths of right triangle RST are given. Triangle RST is similar to triangle UVW, where S corresponds to V and T corresponds to W. What is the value of $\tan W$?

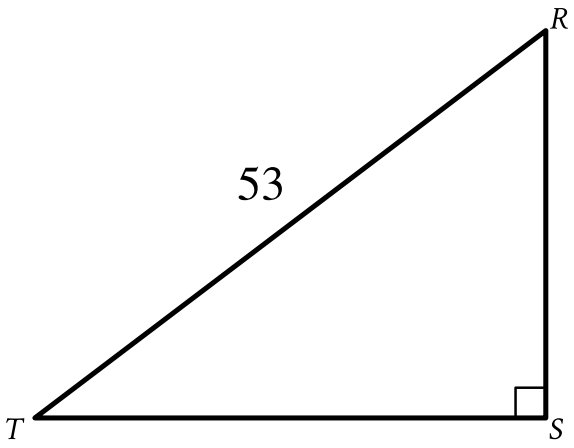
A. $\frac{5}{13}$

B. $\frac{5}{12}$

C. $\frac{12}{13}$

D. $\frac{12}{5}$

ID: 20c18190



Note: Figure not drawn to scale.

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

ID: c10968c1

Triangle ABC is similar to triangle DEF, where angle A corresponds to angle D and angles C and F are right angles. The length of $\overline{AB}$ is 2.9 times the length of $\overline{DE}$. If $\tan A = \frac{21}{20}$, what is the value of $\sin D$?

ID: 3f2b93ef

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?

ID: 381eefb8

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?

ID: d8a0b327

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?

ID: d32d4957

Triangle ABC is similar to triangle DEF, where A corresponds to D and C corresponds to F. Angles C and F are right angles. If $\tan(A) = \sqrt{3}$ and $DF = 125$, what is the length of $\overline{DE}$?

A. $125\frac{\sqrt{3}}{3}$

B. $125\frac{\sqrt{3}}{2}$

C. $125\sqrt{3}$

D. 250

ID: 08cbd418

A square is inscribed in a circle. The radius of the circle is $\frac{20\sqrt{2}}{2}$ inches. What is the side length, in inches, of the square?

A. 20

B. $\frac{20\sqrt{2}}{2}$

C. $20\sqrt{2}$

D. 40

ID: 2ab5f0fd

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?

ID: 7d7d80b2

In triangle JKL, $\cos(K) = \frac{24}{51}$ and angle J is a right angle. What is the value of $\cos(L)$?

ID: f8e6e6c6

An isosceles right triangle has a hypotenuse of length 58 inches. What is the perimeter, in inches, of this triangle?

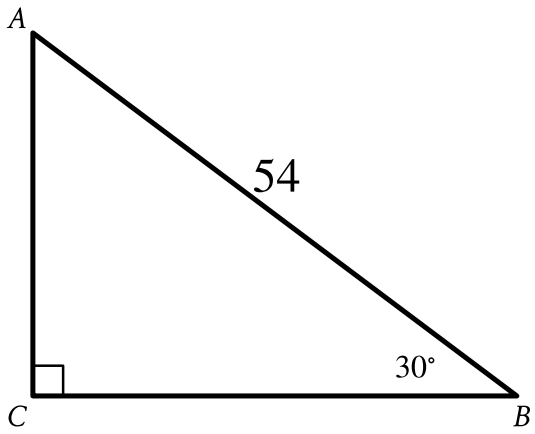
A. $29\sqrt{2}$

B. $58\sqrt{2}$

C. $58 + 58\sqrt{2}$

D. $58 + 116\sqrt{2}$

ID: 1b0b382b



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. $27\sqrt{3}$

ID: e1137c5a

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?

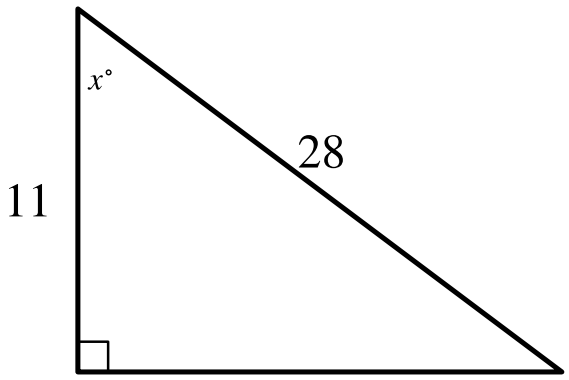
A. 188

B. 168

C. 84

D. 71

ID: 8aeff54c



Note: Figure not drawn to scale.

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

ID: cb6de2ae

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?

ID: 50cd2366

An isosceles right triangle has a perimeter of $94 + 94\sqrt{2}$ inches. What is the length, in inches, of one leg of this triangle?

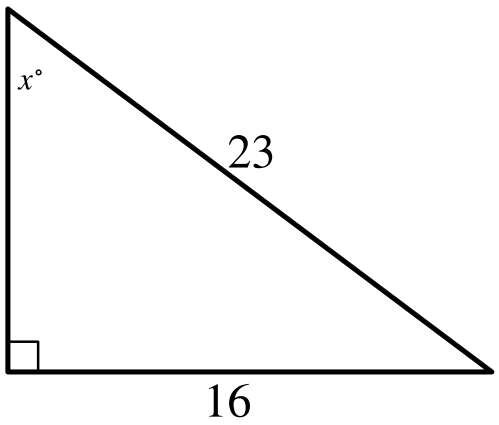
A. 47

B. $47\sqrt{2}$

C. 94

D. $94\sqrt{2}$

ID: 1dbbea6b



Note: Figure not drawn to scale.

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

ID: 8970ec84

The perimeter of an equilateral triangle is 624 centimeters. The height of this triangle is $k\sqrt{3}$ centimeters, where k is a constant. What is the value of k?

ID: 1215eb0a

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 $+ (\sin 24^\circ)^2$

ID: acb49e4b

$$RS = 440$$
$$ST = 384$$
$$TR = 584$$

The side lengths of right triangle RST are given. Triangle RST is similar to triangle UVW, where S corresponds to V and T corresponds to W. What is the value of $\tan W$?

A. $\frac{48}{73}$

B. $\frac{55}{73}$

C. $\frac{48}{55}$

D. $\frac{55}{48}$

ID: 67ee23b4

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. $18\sqrt{2}$

ID: 188370ca

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

ID: 307d7ae0

Triangle ABC is similar to triangle DEF, where angle A corresponds to angle D and angle C corresponds to angle F. Angles C and F are right angles. If $\tan(A) = \frac{50}{7}$, what is the value of $\tan(E)$?

ID: a1ec8e47

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. $\sqrt{34 \cdot 37}$