#1 ID: a4c0547f

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

A) 188

B) 168

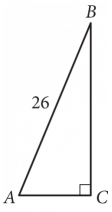
C) 84

D) 71

#2 ID: 85f1892d

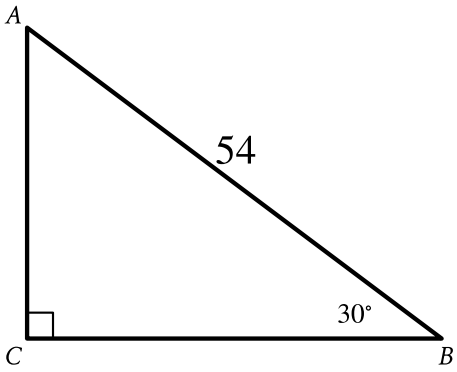
In triangle XYZ, angle Y is a right angle, the measure of angle Z is $33°$, and the length of $\bar{YZ}$ is 26 units. If the area, in square units, of triangle XYZ can be represented by the expression $k\tan 33°$, where k is a constant, what is the value of k?

#3 ID: bd87bc09



Triangle ABC above is a right triangle, and $\sin(B) = \frac{5}{13}$. What is the length of side $\overline{BC}$?

#4 ID: 52f7b898



Note: Figure not drawn to scale.

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

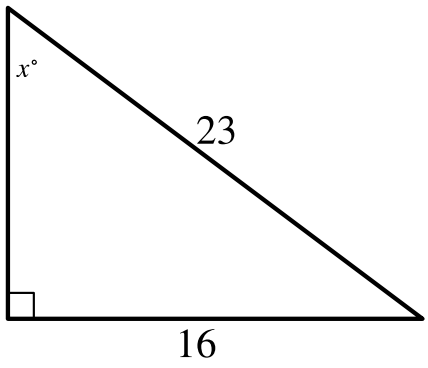
A) $\frac{\sqrt{3}}{54}$

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

C) $\sqrt{3}$

D) $27\sqrt{3}$

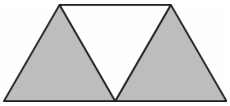
#5 ID: 1429dcdf



Note: Figure not drawn to scale.

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

#6 ID: 4c95c7d4



A graphic designer is creating a logo for a company. The logo is shown in the figure above. The logo is in the shape of a trapezoid and consists of three congruent equilateral triangles. If the perimeter of the logo is 20 centimeters, what is the combined area of the shaded regions, in square centimeters, of the logo?

A) $2\sqrt{3}$

B) $4\sqrt{3}$

C) $8\sqrt{3}$

D) 16

#7 ID: a4bd60a3

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 ?

#8 ID: 498d6795

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 ?

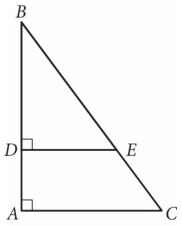
A) $14\sqrt{37}$

B) $26\sqrt{37}$

C) $34\sqrt{37}$

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

#9 ID: 55bb437a



In the figure above, $\tan B = \frac{3}{4}$. If $BC = 15$ and $DA = 4$, what is the length of $\overline{DE}$?

#10 ID: ffe862a3

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) $58 + 116\sqrt{2}$

#11 ID: 44b2b894

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?

#12 ID: 54df8076

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 ?

#13 ID: 568d66a7

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) $94\sqrt{2}$

#14 ID: 0e709a29

$$RS = 440$$

$$ST = 384$$

$$TR = 584$$

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) $\frac{55}{48}$

#15 ID: f811d345

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 ?

#16

ID: c9931030

$RS = 20$

$ST = 48$

$TR = 52$

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) $\frac{5}{13}$

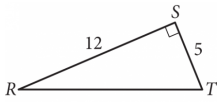
B) $\frac{5}{12}$

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

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

#17

ID: 6933b3d9



In triangle RST above, point W (not shown) lies on $\overline{RT}$. What is the value of $\cos(\angle RSW) - \sin(\angle WST)$?

#18

ID: 6ab30ce3

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

#19

ID: 7c25b0dc

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?

#20

ID: 16d66178

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

A) $2(\cos 66°)(\sin 24°)$

B) $2(\cos 66°) + 2(\cos 24°)$

C) $(\cos 66°)^2 + (\cos 24°)^2$

D) $(\cos 66°)^2 + (\sin 24°)^2$

#21

ID: ae041e52

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

#22

ID: c6dff223

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 $\bar{AB}$ is 2.9 times the length of $\bar{DE}$. If $\tan A = \frac{21}{20}$, what is the value of $\sin D$?

#23

ID: 92eb236a

In a right triangle, the tangent of one of the two acute angles is $\frac{\sqrt{3}}{3}$. What is the tangent of the other acute angle?

A) $-\frac{\sqrt{3}}{3}$

B) $-\frac{3}{\sqrt{3}}$

C) $\frac{\sqrt{3}}{3}$

D) $\frac{3}{\sqrt{3}}$

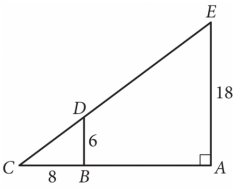
#24

ID: 2be01bd9

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 $\tan(E)$?

#25

ID: dba6a25a



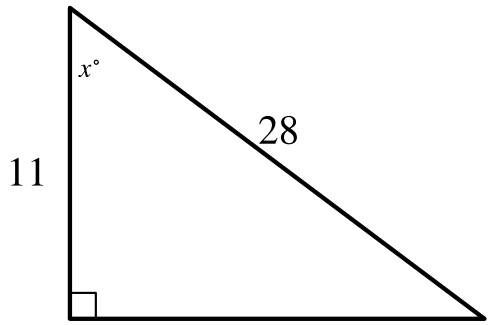
In the figure above, $\overline{BD}$ is parallel to $\overline{AE}$. What is the length of $\overline{CE}$?

#26

ID: 8027db3f

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

#27 ID: 1bf809b5



Note: Figure not drawn to scale.

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

#28 ID: 25da87f8

A triangle with angle measures 30°, 60°, and 90° has a perimeter of $18+6\sqrt{3}$. What is the length of the longest side of the triangle?