SAT Math

Right Triangles and Trigonometry 3
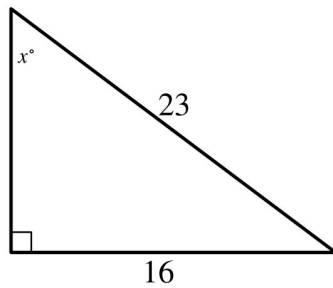
Question #	ID
3.1	bd87bc09

Triangle **ABC** above is a right triangle, and $\sin(B) = \dfrac{5}{13}$.

What is the length of side $\overline{BC}$?

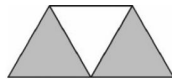|	
3.2	1429dcdf

Note: Figure not drawn to scale.

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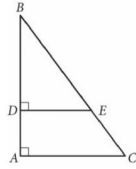

3.3	4c95c7d4

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?
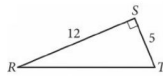
A. $2\sqrt{3}$

B. $4\sqrt{3}$

C. $8\sqrt{3}$

D. 16

Question #	ID
3.4	55bb437a

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

| **3.5** | 6933b3d9 |

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

| **3.6** | 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

| **3.7** | 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?

| **3.8** | 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 $\overline{AB}$ is 2.9 times the length of $\overline{DE}$. If $\tan A = \frac{21}{20}$, what is the value of $\sin D$?

Question #	ID
3.9	92eb236a

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

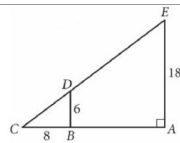A. $-\dfrac{\sqrt{3}}{3}$

B. $-\dfrac{3}{\sqrt{3}}$

C. $\dfrac{\sqrt{3}}{3}$

D. $\dfrac{3}{\sqrt{3}}$

3.10   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 $\tan(E)$?

3.11   dba6a25a

In the figure above, $\overline{BD}$ is parallel to $\overline{AE}$.

What is the length of $\overline{CE}$?

3.12   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?

Question #	ID
3.13	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. $94\sqrt{2}$

3.14	8027db3f

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

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

3.16	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. $58\sqrt{2}$

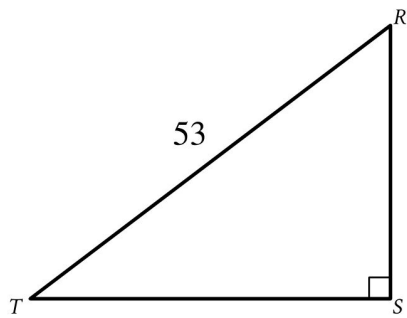C. $58 + 58\sqrt{2}$

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

Question #	ID
3.17	14e7c1f4

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

3.18	a67b9f88

Note: Figure not drawn to scale.

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

3.19	58c26db8

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. $18\sqrt{2}$