

# Right Angles & Trigonometry

## CollegeBoard Question Bank

### Abstract

This exercise sheet contains

- a **Medium** category with 5 questions;
- a **Hard** category with 12 questions

for you to attempt. A digital copy of this sheet is available for you on [moodle](#). Feel free to utilize **the Question Space on Teams** to ask for guidance.

Best,  
Omar :)

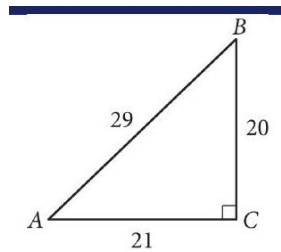
## Right Angles & Trigonometry

### Medium

(1) 902dc959

MULTIPLE CHOICE

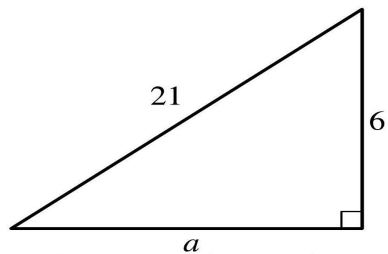
One answer only



In the figure above, what is the value of  $\tan(A)$  ?

- a.  $\frac{20}{21}$
- b.  $\frac{21}{29}$
- c.  $\frac{21}{20}$
- d.  $\frac{20}{29}$

(2) de550be0 MULTIPLE CHOICE One answer only



*Note: Figure not drawn to scale.*

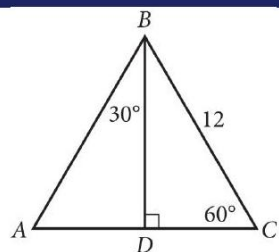
For the triangle shown, which expression represents the value of  $a$  ?

- a.  $\sqrt{21 - 6}$
- b.  $\sqrt{21^2 - 6^2}$
- c.  $21 - 6$
- d.  $21^2 - 6^2$

(3) bf8d843e

MULTIPLE CHOICE

One answer only



In  $\triangle ABC$  above, what is the length of  $\overline{AD}$  ?

- a.  $6\sqrt{2}$
- b. 4
- c. 6
- d.  $6\sqrt{3}$

(4) **a5ace181** MULTIPLE CHOICE One answer only

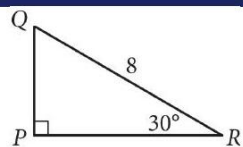
The length of a rectangle's diagonal is  $5\sqrt{17}$ , and the length of the rectangle's shorter side is 5 . What is the length of the rectangle's longer side?

- a.  $15\sqrt{2}$
- b. 400
- c.  $\sqrt{17}$
- d. 20

(5) 13d9a1c3

SHORT ANSWER

Case-Insensitive



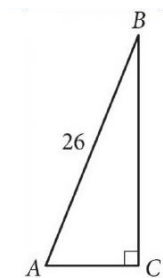
In the right triangle shown above, what is the length of  $\overline{PQ}$  ?

## Hard

(1) bd87bc09

SHORT ANSWER

Case-Insensitive

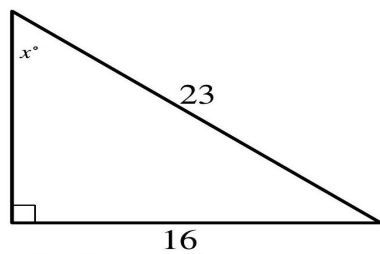


Triangle  $ABC$  above is a right triangle, and  $\sin(B) = \frac{5}{13}$ . What is the length of side  $\overline{BC}$  ?

(2) 1429dcdf

SHORT ANSWER

Case-Insensitive



*Note: Figure not drawn to scale.*

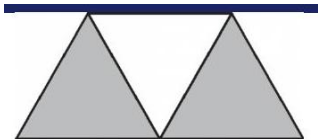
In the triangle shown, what is the value of  $\sin x^\circ$  ?



(3) 4c95c7d4

MULTIPLE CHOICE

One answer only



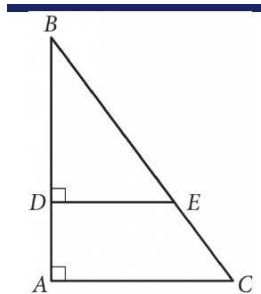
A graphic designer is creating a logo for a company. The logo is shown in the figure above. The logo is in the shape of a trapezoid and consists of three congruent equilateral triangles. If the perimeter of the logo is 20 centimeters, what is the combined area of the shaded regions, in square centimeters,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

- a.  $8\sqrt{3}$
- b.  $2\sqrt{3}$
- c.  $4\sqrt{3}$
- d. 16

(4) 55bb437a

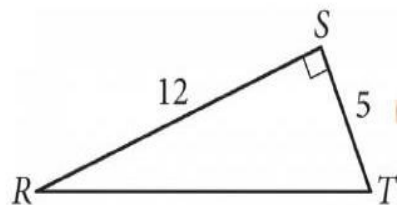
SHORT ANSWER

Case-Insensitive



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

(5) 6933b3d9 SHORT ANSWER Case-Insensitive



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

(6) **6ab30ce3** MULTIPLE CHOICE One answer only

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. 250
- b.  $125\sqrt{3}$
- c.  $125\frac{\sqrt{3}}{3}$
- d.  $125\frac{\sqrt{3}}{2}$

(7) **7c25b0dc** SHORT ANSWER Case-Insensitive

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?

(8) **c6dff223** SHORT ANSWER Case-Insensitive

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  $\sin D$ ?

(9) **92eb236a** MULTIPLE CHOICE One answer only

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.  $\frac{3}{\sqrt{3}}$
- b.  $\frac{\sqrt{3}}{3}$
- c.  $-\frac{3}{\sqrt{3}}$
- d.  $-\frac{\sqrt{3}}{3}$

(10) **2be01bd9** SHORT ANSWER Case-Insensitive

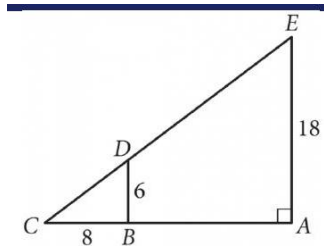
Triangle  $ABC$  is similar to triangle  $DEF$ , where angle  $A$  corresponds to angle  $D$  and angle  $C$  corresponds to angle  $F$ . Angles  $C$  and  $F$  are right angles. If  $\tan(A) = \frac{50}{7}$ , what is the value of  $\tan(E)$  ?



(11) **25da87f8** SHORT ANSWER Case-Insensitive

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

(12) dba6a25a SHORT ANSWER Case-Insensitive



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

*Total of marks: 17*