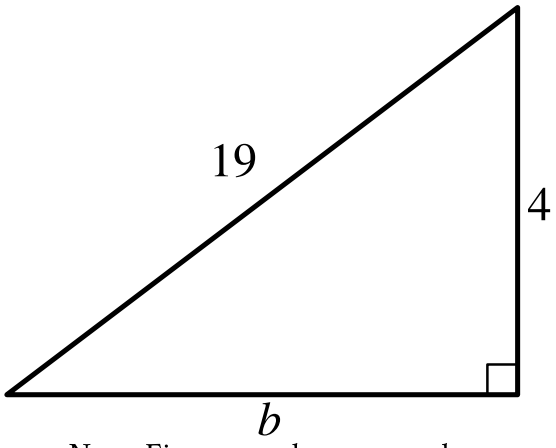
Question ID b0c5ece5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Right triangles and trigonometry	■□□

ID: b0c5ece5



Note: Figure not drawn to scale.

Which equation shows the relationship between the side lengths of the given triangle?

A. $4b = 19$

B. $4 + b = 19$

C. $4^2 + b^2 = 19^2$

D. $4^2 - b^2 = 19^2$

ID: b0c5ece5 Answer

Correct Answer: C

Rationale

Choice C is correct. The Pythagorean theorem states that in a right triangle, the sum of the squares of the lengths of the two legs is equal to the square of the length of the hypotenuse. Therefore, $a^2 + b^2 = c^2$, where a and b are the lengths of the legs and c is the length of the hypotenuse. For the given right triangle, the lengths of the legs are 4 and b, and the length of the hypotenuse is 19. Substituting 4 for a and 19 for c in the equation $a^2 + b^2 = c^2$ yields $4^2 + b^2 = 19^2$. Thus, the relationship between the side lengths of the given triangle is $4^2 + b^2 = 19^2$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

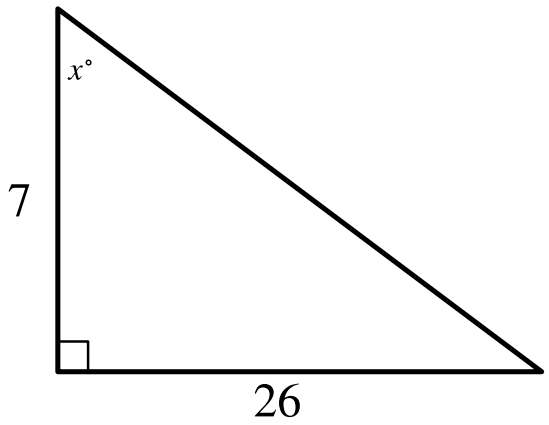
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 64c1f044

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Right triangles and trigonometry	■□□

ID: 64c1f044



Note: Figure not drawn to scale.

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

A. $\frac{1}{26}$

B. $\frac{19}{26}$

C. $\frac{26}{7}$

D. $\frac{33}{7}$

ID: 64c1f044 Answer

Correct Answer: C

Rationale

Choice C is correct. The tangent of an acute angle in a right triangle is defined as the ratio of the length of the side opposite the angle to the length of the shorter side adjacent to the angle. In the triangle shown, the length of the side opposite the angle with measure $x°$ is 26 units and the length of the side adjacent to the angle with measure $x°$ is 7 units. Therefore, the value of $\tan x°$ is $\frac{26}{7}$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy