

NAME: _____

G.G.45: Investigate, justify, and apply theorems about similar triangles

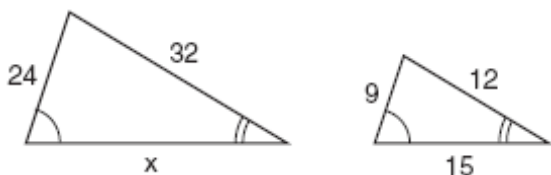
1. 060307a, P.I. G.G.45

A triangle has sides whose lengths are 5, 12, and 13. A similar triangle could have sides with lengths of

- [A] 10, 24, and 26 [B] 7, 24, and 25
[C] 3, 4, and 15 [D] 6, 8, and 10

2. 010410a, P.I. G.G.45

The accompanying diagram shows two similar triangles.

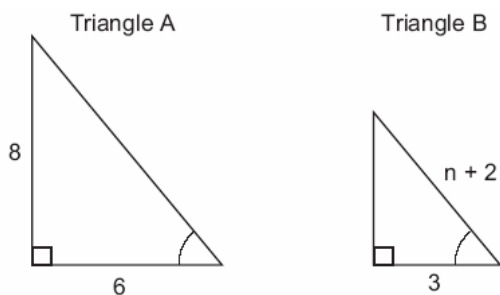


Which proportion could be used to solve for x ?

- [A] $\frac{x}{24} = \frac{9}{15}$ [B] $\frac{32}{x} = \frac{12}{15}$
[C] $\frac{24}{9} = \frac{15}{x}$ [D] $\frac{32}{12} = \frac{15}{x}$

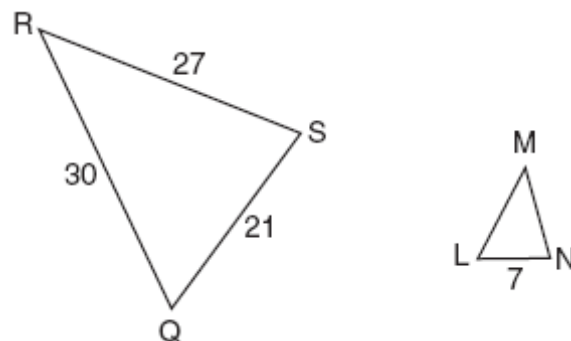
3. 060230a, P.I. G.G.45

In the accompanying diagram, triangle A is similar to triangle B . Find the value of n .



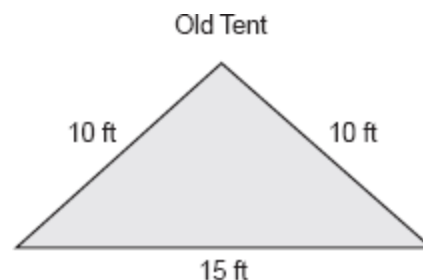
4. 010931a, P.I. G.G.45

In the accompanying diagram, $\triangle QRS$ is similar to $\triangle LMN$, $RQ = 30$, $QS = 21$, $SR = 27$, and $LN = 7$. What is the length of \overline{ML} ?



5. 060024a, P.I. G.G.45

The Rivera family bought a new tent for camping. Their old tent had equal sides of 10 feet and a floor width of 15 feet, as shown in the accompanying diagram.

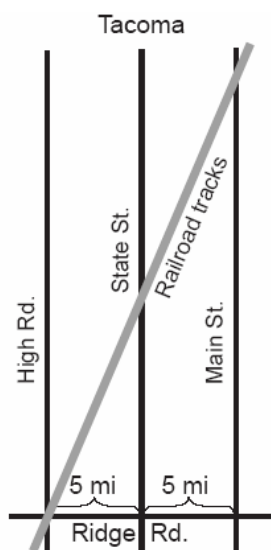


If the new tent is similar in shape to the old tent and has equal sides of 16 feet, how wide is the floor of the new tent?

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6. 080021a, P.I. G.G.45

The accompanying diagram shows a section of the city of Tacoma. High Road, State Street, and Main Street are parallel and 5 miles apart. Ridge Road is perpendicular to the three parallel streets. The distance between the intersection of Ridge Road and State Street and where the railroad tracks cross State Street is 12 miles. What is the distance between the intersection of Ridge Road and Main Street and where the railroad tracks cross Main Street?



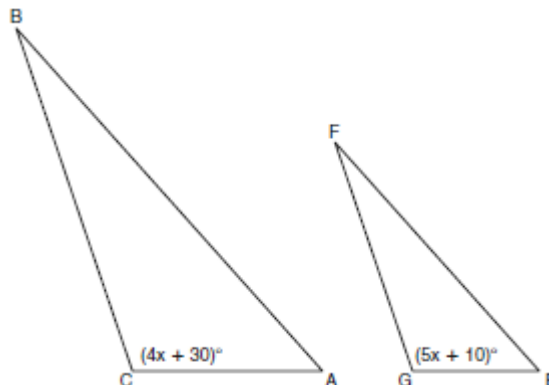
7. 060927ge, P.I. G.G.45

In $\triangle ABC$, point D is on \overline{AB} , and point E is on \overline{BC} such that $\overline{DE} \parallel \overline{AC}$. If $DB = 2$, $DA = 7$, and $DE = 3$, what is the length of \overline{AC} ?

- [A] 10.5 [B] 13.5 [C] 9 [D] 8

8. 060934ge, P.I. G.G.45

In the diagram below, $\triangle ABC \sim \triangle EFG$, $m\angle C = 4x + 30$, and $m\angle G = 5x + 10$. Determine the value of x .



9. 010505a, P.I. G.G.45

The perimeter of $\triangle A'B'C'$, the image of $\triangle ABC$, is twice as large as the perimeter of $\triangle ABC$. What type of transformation has taken place?

- [A] reflection [B] translation
[C] rotation [D] dilation

10. 060411a, P.I. G.G.45

Delroy's sailboat has two sails that are similar triangles. The larger sail has sides of 10 feet, 24 feet, and 26 feet. If the shortest side of the smaller sail measures 6 feet, what is the perimeter of the *smaller* sail?

- [A] 36 ft [B] 60 ft
[C] 15 ft [D] 100 ft

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11. 060208a, P.I. G.G.45

Two triangles are similar. The lengths of the sides of the smaller triangle are 3, 5, and 6, and the length of the longest side of the larger triangle is 18. What is the perimeter of the larger triangle?

[A] 42 [B] 24 [C] 18 [D] 14

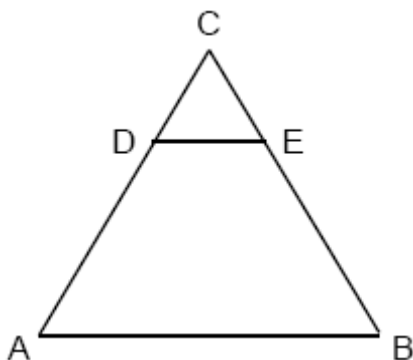
12. 080729a, P.I. G.G.45

Which is *not* a property of all similar triangles?

- [A] The corresponding angles are congruent.
[B] The perimeters are in the same ratio as the corresponding sides.
[C] The corresponding sides are congruent.
[D] The altitudes are in the same ratio as the corresponding sides.

13. 089915a, P.I. G.G.45

In the accompanying diagram of equilateral triangle ABC , $DE = 5$ and $\overline{DE} \parallel \overline{AB}$.



If AB is three times as long as DE , what is the perimeter of quadrilateral $ABED$?

[A] 40 [B] 35 [C] 20 [D] 30

14. 060524a, P.I. G.G.45

On a scale drawing of a new school playground, a triangular area has sides with lengths of 8 centimeters, 15 centimeters, and 17 centimeters. If the triangular area located on the playground has a perimeter of 120 meters, what is the length of its longest side?

[A] 40 m [B] 45 m
[C] 51 m [D] 24 m

15. 010704a, P.I. G.G.45

The base of an isosceles triangle is 5 and its perimeter is 11. The base of a similar isosceles triangle is 10. What is the perimeter of the larger triangle?

[A] 15 [B] 110 [C] 22 [D] 21

16. fall0826ge, P.I. G.G.45

Two triangles are similar, and the ratio of each pair of corresponding sides is 2 : 1. Which statement regarding the two triangles is *not* true?

- [A] Their areas have a ratio of 4 : 1.
[B] Their corresponding angles have a ratio of 2 : 1.
[C] Their altitudes have a ratio of 2 : 1.
[D] Their perimeters have a ratio of 2 : 1.

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[1] A

[2] B

[3] 3, and appropriate work is shown, such as using a 3:4:5 right triangle, correct proportions, or the Pythagorean theorem with a proportion.

[2] Appropriate work is shown, and the value of the side is determined to be 5, but $n = 3$ is not found.

[1] A correct proportion is set up, but no answer or an incorrect answer is found.

or [1] 3, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[3] incorrect procedure.

[2] 10, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made, such as writing an incorrect proportion.

or [1] A correct proportion is written, but no further correct work is shown.

or [1] 10, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.

[2] 24 feet and appropriate work is shown,

such as $\frac{10}{15} = \frac{16}{x}$ or $\frac{10}{16} = \frac{15}{x}$.

[1] An appropriate proportion is shown, but an incorrect solution or no solution is found.

or [1] An incorrect proportion of equal difficulty is shown, but an appropriate solution for the proportion written is found.

or [1] 24 feet but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[5] incorrect procedure.

[2] 24 miles and appropriate work is shown, such as using a proportion, showing doubling of the sides, or using any other appropriate method.

[1] Appropriate work is shown, but one computational or substitution error is made.

or [1] An incorrect proportion is appropriately solved.

or [1] 24 but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[6] incorrect procedure.

[7] B

[2] 20, and appropriate work is shown.

[1] Appropriate work is shown, but one computational error is made.

or [1] Appropriate work is shown, but one conceptual error is made.

or [1] 20, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[8] incorrect procedure.

[9] D

[10] A

[11] A

[12] C

[13] A

[14] C

[15] C

[16] B