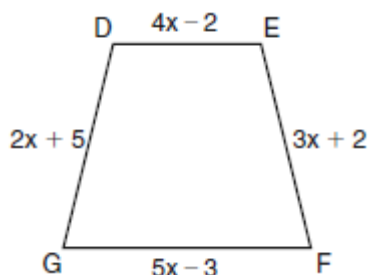


NAME: _____

G.G.40: Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles

1. 080929ge, P.I. G.G.40

In the diagram below of isosceles trapezoid $DEFG$, $\overline{DE} \parallel \overline{GF}$, $DE = 4x - 2$, $EF = 3x + 2$, $FG = 5x - 3$, and $GD = 2x + 5$. Find the value of x .



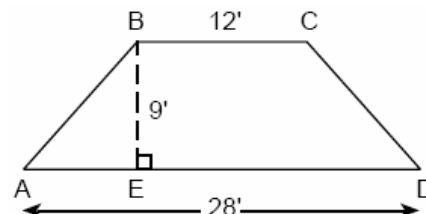
2. fall0801ge, P.I. G.G.40

Isosceles trapezoid $ABCD$ has diagonals \overline{AC} and \overline{BD} . If $AC = 5x + 13$ and $BD = 11x - 5$, what is the value of x ?

[A] $\frac{1}{2}$ [B] 3 [C] $10\frac{3}{4}$ [D] 28

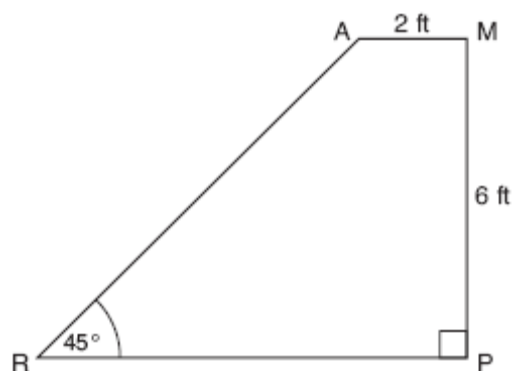
3. 069933a, P.I. G.G.40

The cross section of an attic is in the shape of an isosceles trapezoid, as shown in the accompanying figure. If the height of the attic is 9 feet, $BC = 12$ feet, and $AD = 28$ feet, find the length of \overline{AB} to the nearest foot.



4. 080726b, P.I. G.G.40

The accompanying diagram shows ramp \overline{RA} leading to level platform \overline{AM} , forming an angle of 45° with level ground. If platform \overline{AM} measures 2 feet and is 6 feet above the ground, explain why the exact length of ramp \overline{RA} is $6\sqrt{2}$ feet.



G.G.40: Investigate, justify, and apply theorems about trapezoids (including isosceles trapezoids) involving their angles

[2] 3, 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] 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

[1] incorrect procedure.

[2] B

[4] 12 and an appropriate method is shown, such as $(AB)^2 = 9^2 + 8^2$.

[3] An incorrect length is found for AE, but then it is used to correctly complete the problem.

or [3] An appropriate method is shown, but one computational mistake is made.

or [3] An appropriate method is shown, but the answer is not given to the nearest foot, such as $\sqrt{145}$.

[2] $AE = 8$ and one computational mistake is made using the Pythagorean theorem.

or [2] An incorrect length is found for AE, but then it is used to complete the problem correctly, but the answer is not rounded.

[1] $AE = 8$ is found, but the Pythagorean theorem is not used.

or [1] 12 and 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] An appropriate explanation is written, such as defining special isosceles right triangles, or appropriate work is shown, such as using legs of six and finding the hypotenuse.

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

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

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

[4] incorrect procedure.