

Geometry

Administered May 2013

RELEASED

STAAR GEOMETRY REFERENCE MATERIALS



CIRCUMFERENCE

Circle $C = 2\pi r$ or $C = \pi d$

AREA

Triangle $A = \frac{1}{2}bh$

Rectangle or parallelogram $A = bh$

Rhombus $A = \frac{1}{2}d_1d_2$

Trapezoid $A = \frac{1}{2}(b_1 + b_2)h$

Regular polygon $A = \frac{1}{2}aP$

Circle $A = \pi r^2$

SURFACE AREA

	Lateral	Total
Prism	$S = Ph$	$S = Ph + 2B$
Pyramid	$S = \frac{1}{2}Pl$	$S = \frac{1}{2}Pl + B$
Cylinder	$S = 2\pi rh$	$S = 2\pi rh + 2\pi r^2$
Cone	$S = \pi rl$	$S = \pi rl + \pi r^2$
Sphere		$S = 4\pi r^2$

VOLUME

Prism or cylinder $V = Bh$

Pyramid or cone $V = \frac{1}{3}Bh$

Sphere $V = \frac{4}{3}\pi r^3$

STAAR GEOMETRY REFERENCE MATERIALS

COORDINATE GEOMETRY

Midpoint

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Distance formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Slope of a line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Slope-intercept form of a linear equation

$$y = mx + b$$

Point-slope form of a linear equation

$$y - y_1 = m(x - x_1)$$

Standard form of a linear equation

$$Ax + By = C$$

RIGHT TRIANGLES

Pythagorean theorem

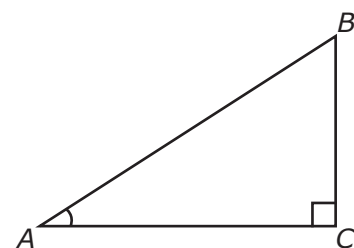
$$a^2 + b^2 = c^2$$

Trigonometric ratios

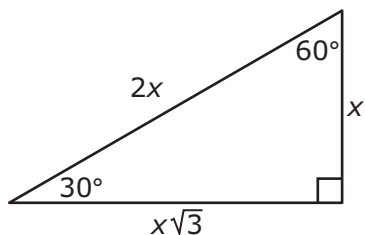
$$\sin A = \frac{\text{opposite leg}}{\text{hypotenuse}}$$

$$\cos A = \frac{\text{adjacent leg}}{\text{hypotenuse}}$$

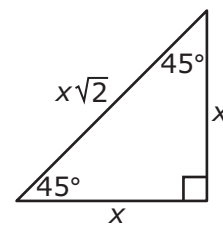
$$\tan A = \frac{\text{opposite leg}}{\text{adjacent leg}}$$

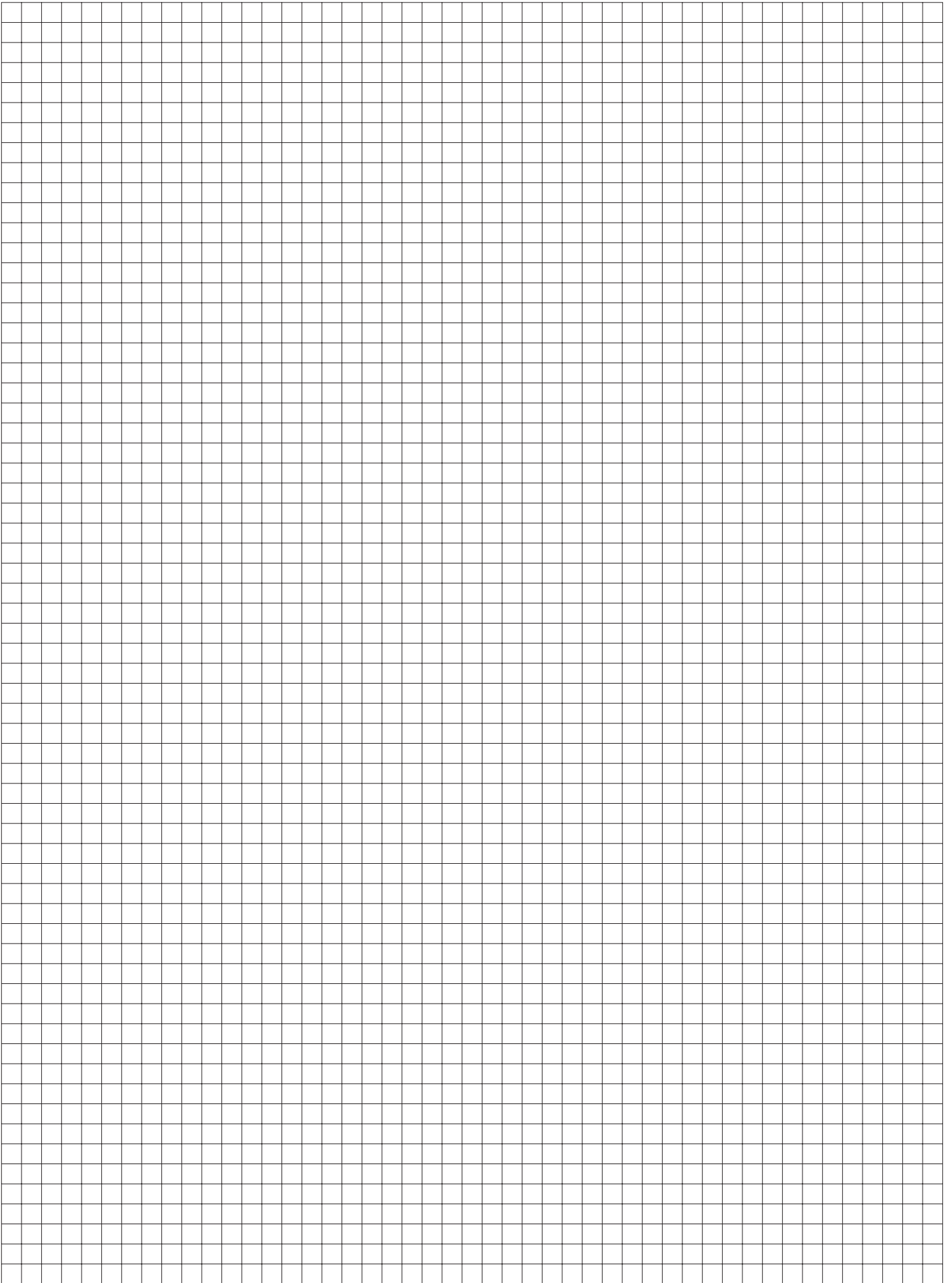


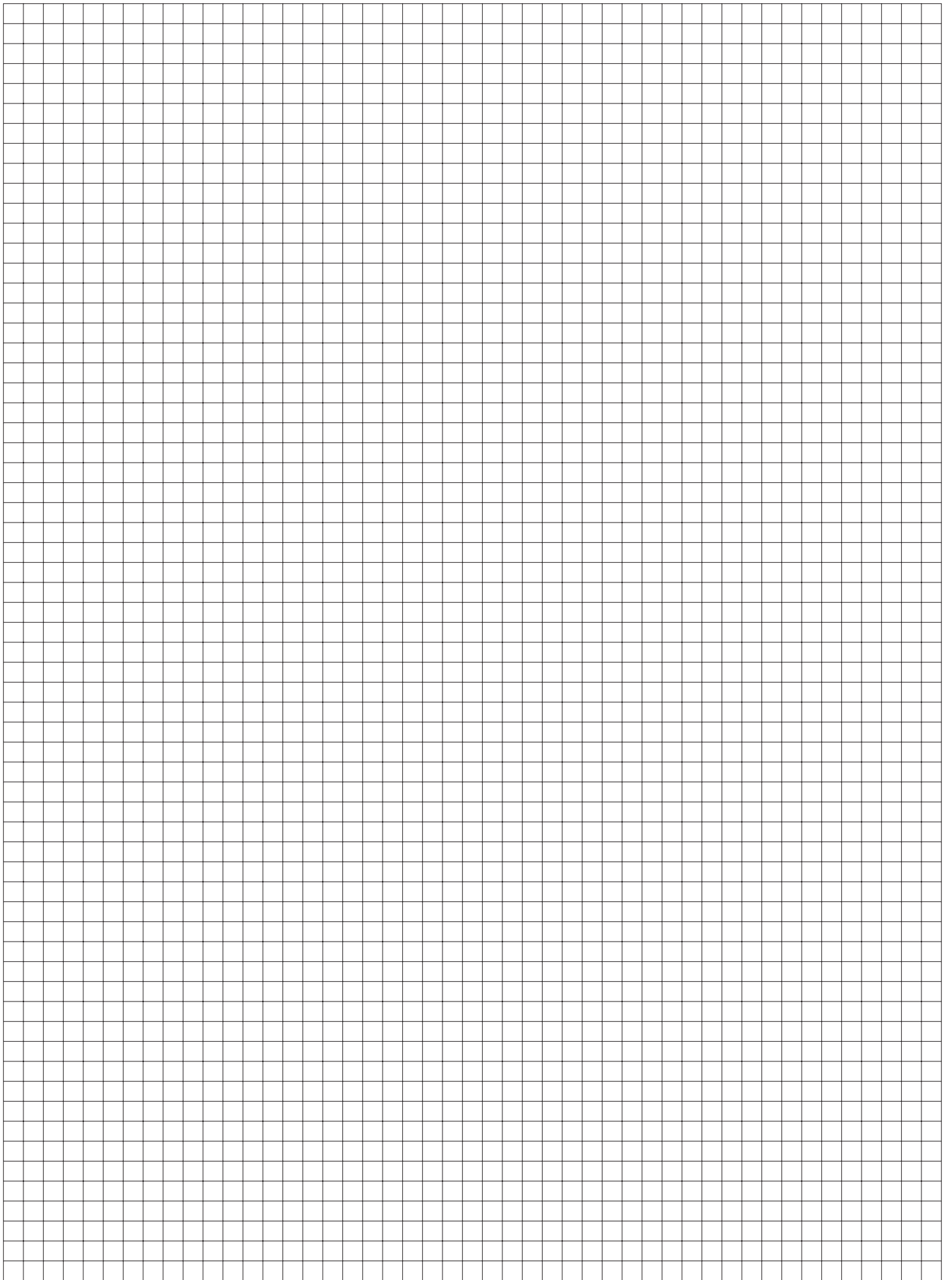
30° - 60° - 90° triangle



45° - 45° - 90° triangle







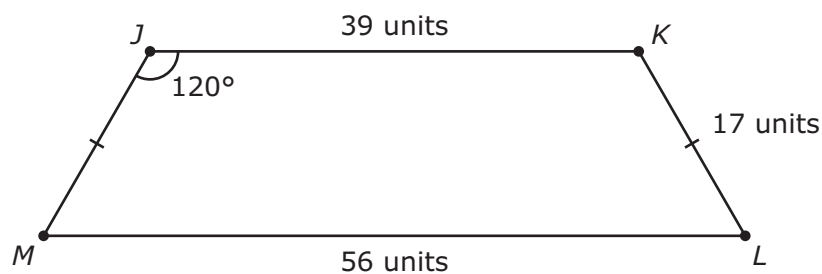
Geometry

DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

- 1 \overline{CD} has an endpoint at $(2, -1)$ and a midpoint at $(8, 3)$. Which measure is closest to the length of \overline{CD} ?
- A 20.4 units
B 8.9 units
C 14.4 units
D 11.7 units
-

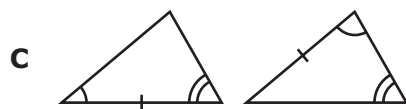
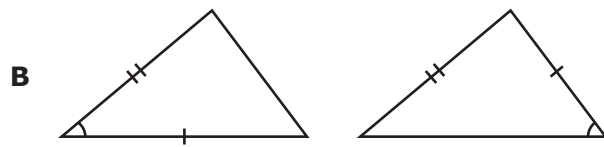
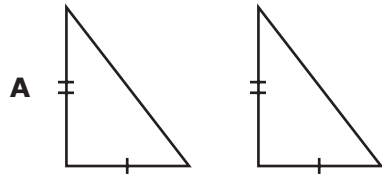
- 2 Isosceles trapezoid $JKLM$ is shown below.



If the dimensions of trapezoid $JKLM$ are multiplied by a scale factor of f to create trapezoid $J'K'L'M'$, which statement is true?

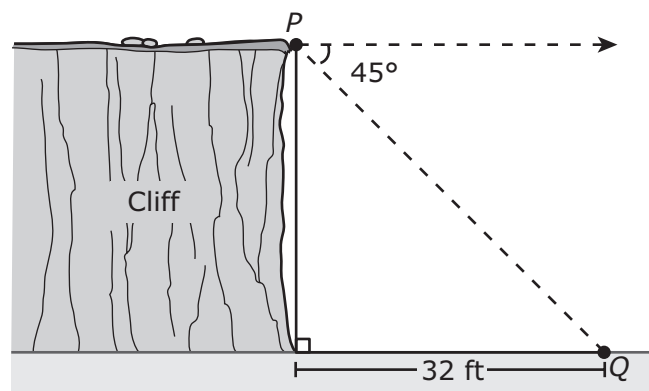
- F Trapezoid $J'K'L'M'$ contains two base angles measuring 30° each.
G The longer base of trapezoid $J'K'L'M'$ is $56f$ units.
H The bases of trapezoid $J'K'L'M'$ have lengths of 22 units and 39 units.
J Trapezoid $J'K'L'M'$ contains two base angles measuring $(120f)^\circ$ each.

- 3 Which pair of triangles has enough given information to prove that the triangles are congruent?



- D None of these

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- 4 In the diagram below, the angle of depression from P to Q is 45° .



Not drawn to scale

Which of the following is closest to the distance between P and Q ?

- F 45.3 ft
G 22.6 ft
H 55.4 ft
J 18.5 ft