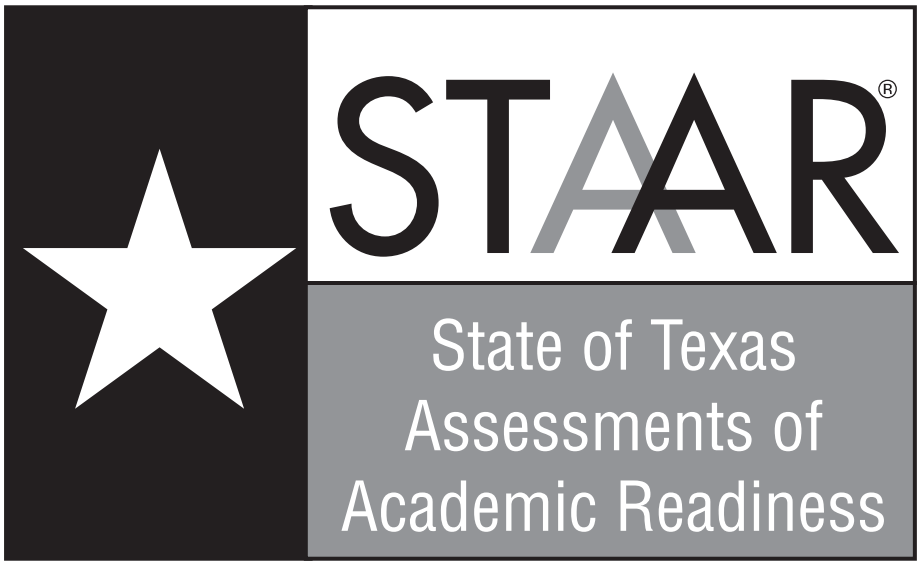

Geometry

Administered May 2013

RELEASED

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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

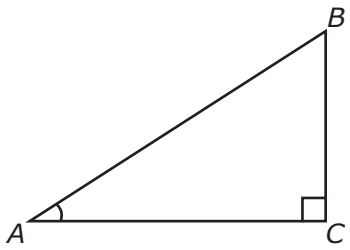
Pythagorean theorem $a^2 + b^2 = c^2$

Trigonometric ratios

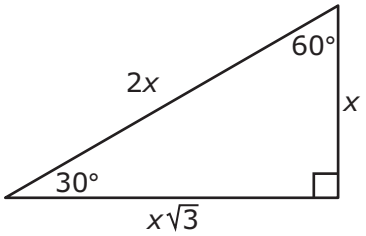
$\sin A = \frac{\text{opposite leg}}{\text{hypotenuse}}$

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

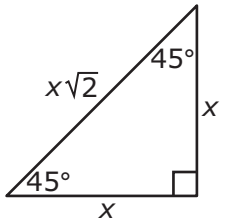
$\tan A = \frac{\text{opposite leg}}{\text{adjacent leg}}$



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

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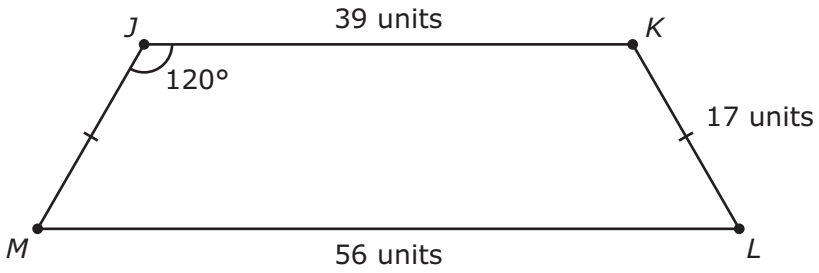
2 Isosceles trapezoid *JKLM* is shown below.



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 56*f* units.

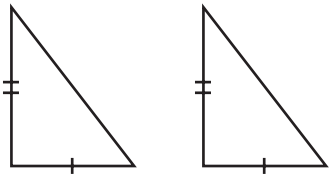
H The bases of trapezoid *J′K′L′M′* have lengths of 22 units and 39 units.

J Trapezoid *J′K′L′M′* contains two base angles measuring (120*f*)° each.

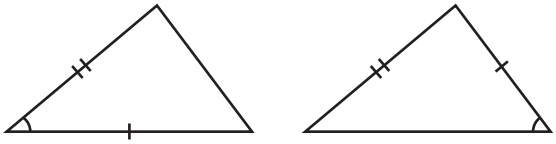
GO ON

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

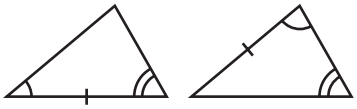
A



B



C



D None of these

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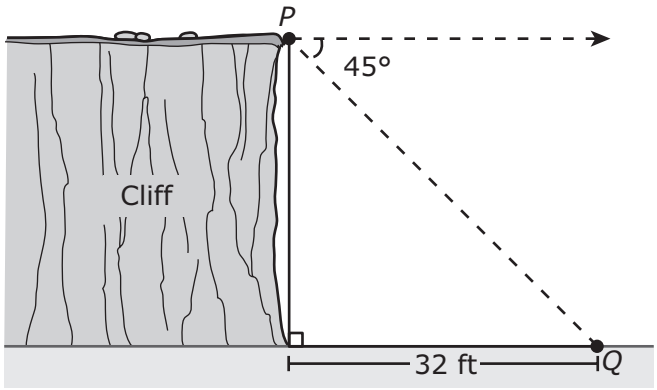
4 In the diagram below, the angle of depression from P to Q is 45°.



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

GO ON