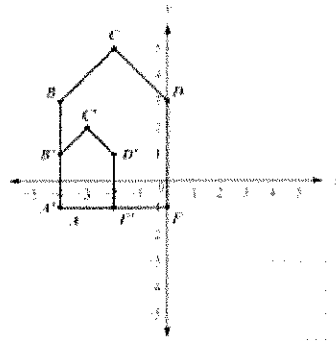


## Geometry Milestones Practice Test #2

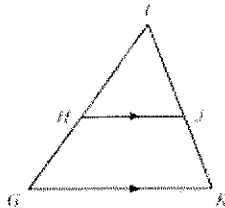
- 1) Figure  $A'B'C'D'F'$  is a dilation of figure  $ABCDF$  by a scale factor of  $\frac{1}{2}$ . The dilation is centered at  $(-4, -1)$ .



Which statement is true?

- A.  $\frac{AB}{A'B'} = \frac{B'C'}{BC}$   
 B.  $\frac{AB}{A'B'} = \frac{BC}{B'C'}$   
 C.  $\frac{AB}{A'B'} = \frac{BC}{D'F'}$   
 D.  $\frac{AB}{A'B'} = \frac{D'F'}{BC}$

2. Use this triangle to answer the question.



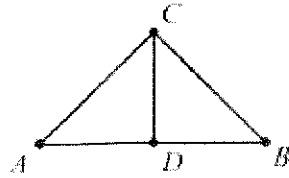
This is a proof of the statement "If a line is parallel to one side of a triangle and intersects the other two sides at distinct points, then it separates these sides into segments of proportional lengths."

	Step	Justification
1	$\overline{GK}$ is parallel to $\overline{HJ}$	Given
2	$\angle HGK \cong \angle HJG$ $\angle IKG \cong \angle IJH$	?
3	$\triangle GIK \sim \triangle HJG$	AA similarity postulate
4	$\frac{IG}{IH} = \frac{JK}{IJ}$	Corresponding sides of similar triangles are proportional
5	$\frac{IG + IH}{IH} = \frac{JK + IJ}{IJ}$	Segment addition postulate
6	$\frac{IG}{IH} = \frac{JK}{IJ}$	Subtraction property

Which reason justifies Step 2?

- A. Alternate interior angles are congruent.  
 B. Alternate exterior angles are congruent.  
 C. Corresponding angles are congruent.  
 D. Vertical angles are congruent.

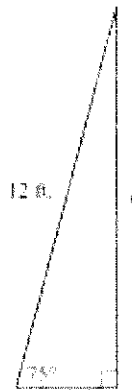
3. In this diagram,  $\overline{CD}$  is the perpendicular bisector of  $\overline{AB}$ . The two-column proof shows that  $\overline{AC}$  is congruent to  $\overline{BC}$ .



Step	Statement	Justification
1	$\overline{CD}$ is the perpendicular bisector of $\overline{AB}$	Given
2	$\overline{AD} \cong \overline{BD}$	Definition of bisector
3	$\overline{CD} \cong \overline{CD}$	Reflexive Property of Congruence
4	$\angle ADC$ and $\angle BDC$ are right angles	Definition of perpendicular lines
5	$\angle ADC \cong \angle BDC$	All right angles are congruent
6	$\triangle ADC \cong \triangle BDC$	_____?
7	$\overline{AC} \cong \overline{BC}$	CPCTC

Which theorem would justify Step 6?

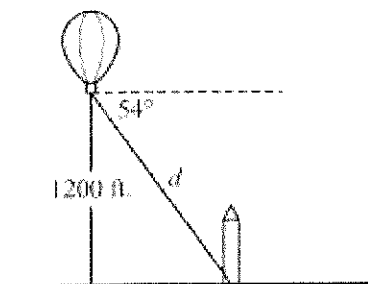
- A. AAS
  - B. ASA
  - C. SAS
  - D. SSS
4. A 12-foot ladder is leaning against a building at a  $75^\circ$  angle with the ground.



Which can be used to find how high the ladder reaches up the side of the building?

- A.  $\sin 75^\circ = \frac{12}{x}$
- B.  $\tan 75^\circ = \frac{12}{x}$
- C.  $\cos 75^\circ = \frac{x}{12}$
- D.  $\sin 75^\circ = \frac{x}{12}$

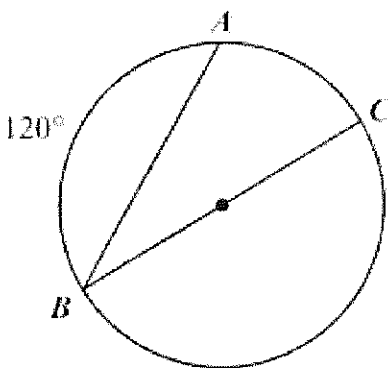
5. A hot air balloon is 1200 feet above the ground. The angle of depression from the basket of the hot-air balloon to the base of a monument is  $54^\circ$ .



Which equation can be used to find the distance,  $d$ , in feet, from the basket of the hot-air balloon to the base of the monument?

- A.  $\sin 54^\circ = \frac{d}{1200}$
- B.  $\sin 54^\circ = \frac{1200}{d}$
- C.  $\cos 54^\circ = \frac{d}{1200}$
- D.  $\cos 54^\circ = \frac{1200}{d}$

6. In the circle shown,  $\overline{BC}$  is a diameter and  $m\widehat{AB} = 120^\circ$ .



What is the measure of  $\angle ABC$ ?

- A.  $15^\circ$
- B.  $30^\circ$
- C.  $60^\circ$
- D.  $120^\circ$

7. Jason constructed two cylinders using solid metal washers. The cylinders have the same height, but one of the cylinders is slanted as shown.



Which statement is true about Jason's cylinders?

- A. The cylinders have different volumes because they have different radii.  
 B. The cylinders have different volumes because they have different surface areas.  
 C. The cylinders have the same volume because each of the washers has the same height.  
 D. The cylinders have the same volume because they have the same cross-sectional area at every plane parallel to the bases.
8. Which is an equation for the circle with a center at  $(-2, 3)$  and a radius of 3?
- A.  $x^2 + y^2 + 4x - 6y + 22 = 0$   
 B.  $2x^2 + 2y^2 - 3x - 3y - 4 = 0$   
 C.  $x^2 + y^2 + 4x - 6y + 4 = 0$   
 D.  $3x^2 + 3y^2 + 4x - 6y - 4 = 0$

9. A random survey was conducted about gender and hair color. This table records the data.

Hair Color

	Brown	Blonde	Red
Male	548	876	82
Female	612	716	66

What is the probability that a randomly selected person has blonde hair, given that the person selected is male?

- A. 0.51  
 B. 0.55  
 C. 0.58  
 D. 0.63
10. **Constructed Response:** A company makes candles in the shapes of cones and square pyramids.
- A. If a cone-shaped candle is 4 inches tall and has a circumference of 10 inches, what is the volume of wax needed to make the candle?
- B. What would be the base length of a square pyramid with the same volume and same height as the cone-shaped candle?