

Chapter 9: Similar Polygons and Triangles (Practice Test)

Multiple Choice

Identify the choice that best completes the statement or answers the question.

B

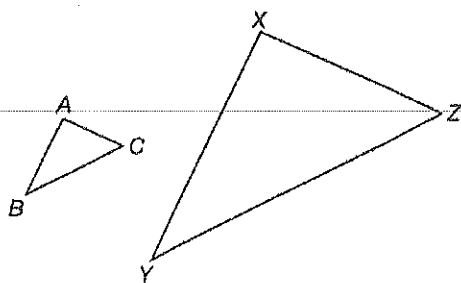
1. Complete the sentence:

When two polygons are similar,

- a. corresponding angles are equal.
- b. the polygons are congruent.
- c. all of the above
- d. corresponding sides are equal.

C

2. Which statement indicates that these two triangles are similar?



- a. $\triangle ABC \cong \triangle XYZ$
- b. $\triangle ABC = \triangle XYZ$
- c. $\triangle ABC \sim \triangle XYZ$
- d. $\triangle ABC \neq \triangle XYZ$

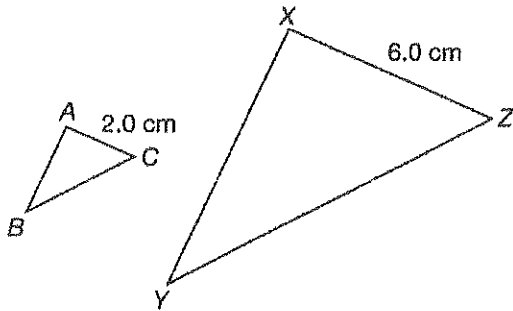
B

3. What is the scale factor 82% expressed as a decimal?

- a. 8.2
- b. 0.82
- c. 82.0
- d. 820.0

B

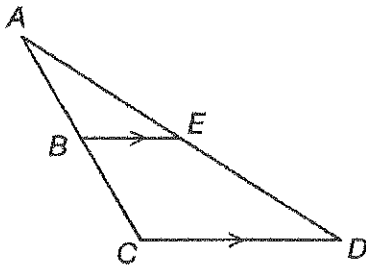
4. These two triangles are similar. Which statement is true?



- a. $\frac{XZ}{AB} = 3.0$
- b. $\frac{XY}{AB} = 3.0$
- c. $\frac{AC}{AB} = 2.0$

B

5. $\triangle ABE$ is similar to $\triangle ACD$.
Which side corresponds to side AB ?



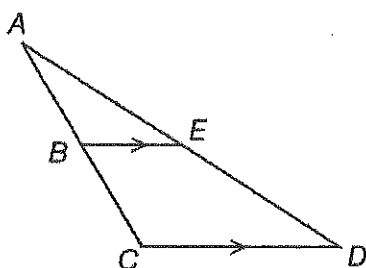
- a. side AD
- b. side AC
- c. side CD

B

6. What is the scale factor $1\frac{3}{4}$ expressed as a percent?

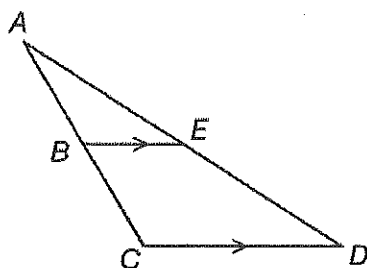
- a. 1.75%
- b. 175%
- c. 1.34%
- d. 17.5%

7. $\triangle ABE$ is similar to $\triangle ACD$.
Which angle is equal to $\angle ABE$?



- a. $\angle CDE$
- b. $\angle CAD$
- c. $\angle ACD$
- d. $\angle BAE$

8. $\triangle ABE$ is similar to $\triangle ACD$.
Why is $\angle ABE$ equal to $\angle ACD$?



- a. $BE \parallel CD$; interior angles are supplementary.
- b. $BE \parallel CD$; corresponding interior angles are equal.
- c. $BE \parallel CD$; opposite angles are equal.
- d. $BE \parallel CD$; alternate interior angles are equal.

9. What is the scale factor $\frac{1}{8}$ expressed as a decimal?

- a. 12.5
- b. 0.125
- c. 8.0
- d. 0.8

D

10. Hannah is making a sketch of a building. Her sketch measures 28 cm by 21 cm. She will paint a mural on a wall of this building for an advertisement. The wall measures 366 cm by 274 cm. What approximate scale factor will be used to paint the mural?

a. 1.3
b. 130
c. 0.7
d. 13

C

11. An *E. coli* bacteria cell is rod shaped. In a photograph of the cell, the length of the cell is 2.0 cm and the width is 0.8 cm. The scale factor used for the photograph was 1000. What is the actual length of the cell in millimetres?

a. 2000 mm
b. 200 mm
c. 0.002 mm
d. 2 mm

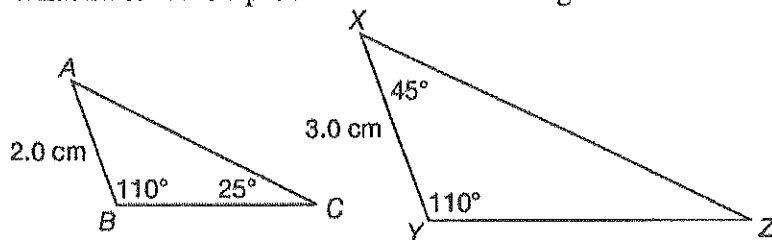
B

12. The giant fire hydrant in Elm Creek, Manitoba is 30 ft tall with a diameter approximately 15 ft. An actual hydrant is approximately 14 times smaller. What the height of an actual fire hydrant, to the nearest inch?

a. 14 in
b. 26 in.
c. 15 in
d. 30 in

C

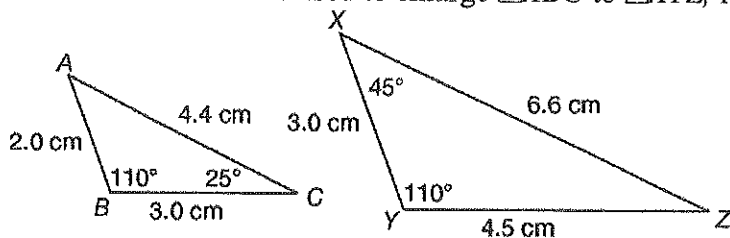
13. $\triangle ABC$ is similar to $\triangle XYZ$.
What information proves that the two triangles are similar?



- a. Two pairs of corresponding angles and one pair of corresponding sides are equal.
b. Pairs of corresponding sides lengths are equal.
c. The three pairs of corresponding angles are equal.
d. The ratios of the lengths of the three pairs of corresponding sides are equal.

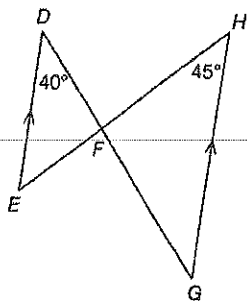
- C** 14. $\triangle ABC$ is similar to $\triangle XYZ$.

What scale factor was used to enlarge $\triangle ABC$ to $\triangle XYZ$, rounded to one decimal place?



- a. 0.5
- b. 0.7
- c. 1.5
- d. 1.7

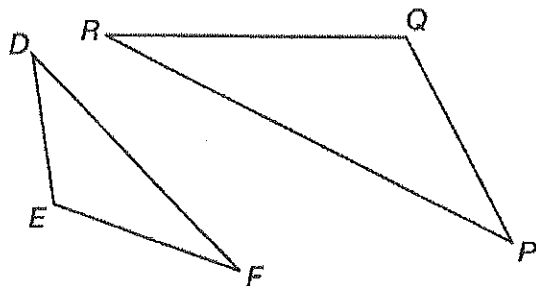
- D** 15. $\triangle DEF$ is similar to $\triangle GHF$. What is the measure of $\angle DFE$?



- a. $\angle DFE = 45^\circ$
- b. $\angle DFE = 40^\circ$
- c. $\angle DFE = 85^\circ$
- d. $\angle DFE = 95^\circ$

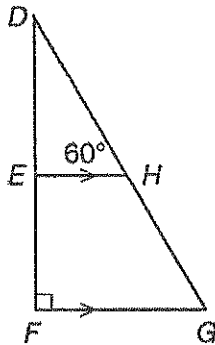
Short Answer

16. $\triangle DEF$ is similar to $\triangle PQR$.
Complete the statement.



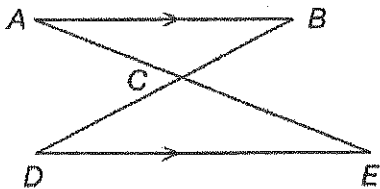
$\angle D = \angle P$

17. What is the measure of
- $\angle DEH$
- ?



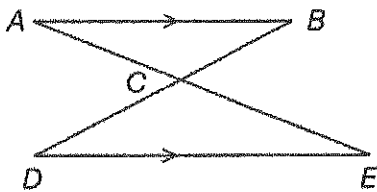
$$\angle DEH = 90^\circ$$

18. Which angle is equal to
- $\angle A$
- ?



$$\angle A = \angle E$$

19. Why is
- $\angle A$
- equal to
- $\angle E$
- ?



Alternate Interior
(Z-Rule)

20. The height of a flowering plant is 0.3 m when planted into the ground. When it is fully grown, the plant will be 145% taller. What will be the plant's height when fully grown, to two decimal places?

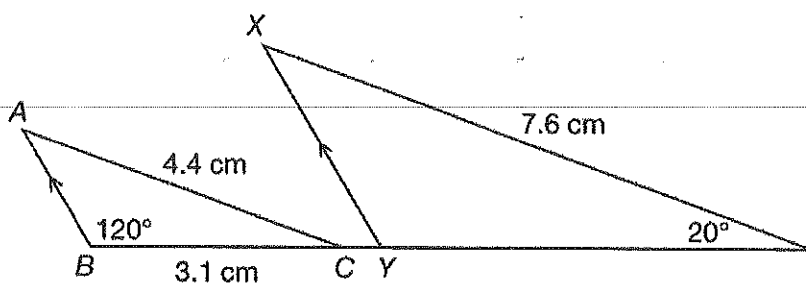
$$145\% = 1.45$$

$$0.3\text{ m} \times 1.45 = 0.435\text{ m}$$

21. Glenboro, Manitoba has Canada's only "desert." It is home to a giant camel statue called Sara. The statue stands 7 m tall. A real camel is approximately 3.3 times smaller than the statue. What is the height of a real camel, to the nearest tenth of a metre?

$$7\text{m} \div 3.3 = 2.1\text{m}$$

22. $\triangle ABC$ is similar to $\triangle XYZ$.
What is the measure of side YZ, to one decimal place?

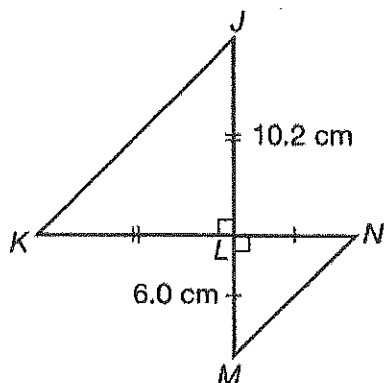


$$\frac{XZ}{AC} = \frac{YZ}{BC}$$

$$\frac{7.6}{4.4} = \frac{X}{3.1}$$

$$7.6 \times 3.1 \div 4.4 = 5.3\text{cm}$$

23. $\triangle JKL$ and $\triangle LMN$ are similar isosceles right triangles.
What is the scale factor used to enlarge $\triangle LMN$ to $\triangle JKL$?



↳ bigger or top. (greater than 1)

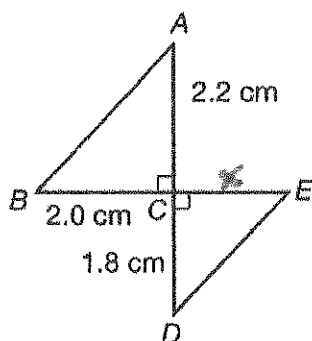
$$\frac{10.2}{6.0} = 1.7 \text{ times}$$

or 170%

Name: _____

ID: A

24. $\triangle ABC$ and $\triangle DEC$ are similar right triangles.
What is the measure of side EC , to one decimal place?



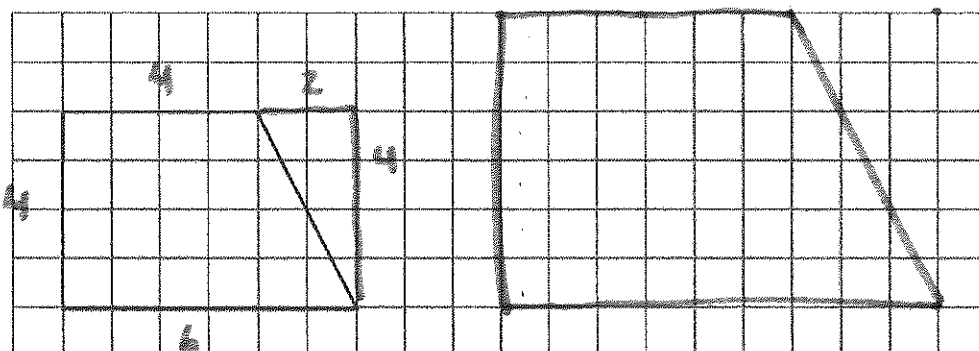
$$\frac{AC}{CD} = \frac{BC}{EC}$$

$$\frac{2.2}{1.8} = \frac{2.0}{x}$$

$$1.8 \times 2.0 \div 2.2 = 1.6 \text{ cm}$$

Problem

25. Draw a similar polygon that is 1.5 times the size of the original one.



$$4 \times 1.5 = 6$$

$$2 \times 1.5 = 3$$

$$6 \times 1.5 = 9$$