Geometry MP5 Exam Study Guide

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

_____ 1. A model is made of a car. The car is 9 feet long and the model is 6 inches long. What is the ratio of the length of the car to the length of the model?
a. 18 : 1   b. 1 : 18   c. 9 : 6   d. 6 : 9

_____ 2. If $\dfrac{a}{b} = \dfrac{5}{3}$, then $3a =$ _____.
a. $3b$ b. $10b$ c. $5b$ d. $6b$

Solve the proportion.

_____ 3. $\dfrac{6}{a} = \dfrac{18}{27}$
a. 54   b. 81   c. 9   d. 18

_____ 4. $\dfrac{5}{7} = \dfrac{m}{35}$
a. $\dfrac{1}{25}$ b. 5   c. 1   d. 25

_____ 5. On a blueprint, the scale indicates that 6 cm represent 15 feet. What is the length of a room that is 9 cm long and 4 cm wide on the blueprint?
a. 22.5 ft   b. 1.5 ft   c. 6 ft   d. 16.5 ft

_____ 6. You want to produce a scale drawing of your living room, which is 24 ft by 15 ft. If you use a scale of 4 in. = 6 ft, what will be the dimensions of your scale drawing?
a. 24 in. by 144 in.   c. 24 in. by 10 in.
b. 16 in. by 10 in.   d. 16 in. by 144 in.

_____ 7. Solve the extended proportion $\dfrac{x}{9} = \dfrac{4}{y} = \dfrac{y}{36}$ for x and y with $x > 0$ and $y > 0$.

a. $x = 6; y = 6$ c. $x = 3; y = 12$
b. $x = 2; y = 18$ d. $x = 8; y = 24$

Are the polygons similar? If they are, write a similarity statement and give the similarity ratio.

_____ 8. In $\triangle RST$, $RS = 10$, $RT = 15$, and $m\angle R = 32$. In $\triangle UVW$, $UV = 12$, $UW = 18$, and $m\angle U = 32$.
a. $\triangle RST \sim \triangle WUV; \dfrac{5}{6}$ c. $\triangle RST \sim \triangle VWU; \dfrac{6}{5}$
b. $\triangle RST \sim \triangle UVW; \dfrac{5}{6}$ d. The triangles are not similar.

_____ 9. In $\triangle QRS$, $QR = 4$, $RS = 15$, and $m\angle R = 36$. In $\triangle UVT$, $VT = 8$, $TU = 32$, and $m\angle T = 36$.
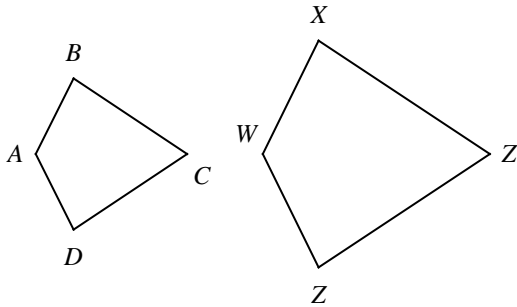
a. $\triangle QRS \sim \triangle VTU$; $\dfrac{15}{32}$

c. $\triangle SRQ \sim \triangle UTV$; $\dfrac{1}{2}$

b. $\triangle RSQ \sim \triangle TUV$; $\dfrac{1}{2}$

d. The triangles are not similar.

_____ 10. $ABCD \sim WXYZ$. $AD = 6$, $DC = 3$, and $WZ = 59$. Find YZ. The figures are not drawn to scale.
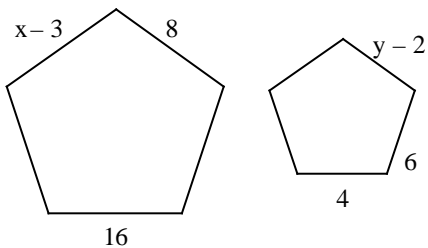

a. 118   b. 29.5   c. 21.7   d. 177

The polygons are similar, but not necessarily drawn to scale. Find the values of x and y.

_____ 11. The pentagons are regular.
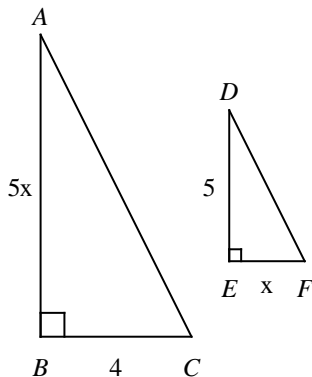

a. $x = 27$, $y = 4$ c. $x = 28$, $y = 5$
b. $x = 27$, $y = 5$ d. $x = 28$, $y = 4$

_____ 12. Triangles ABC and DEF are similar. Find the lengths of AB and EF.

a. $AB = 2$; $EF = 10$ c. $AB = 20$; $EF = 4$
b. $AB = 10$; $EF = 2$ d. $AB = 4$; $EF = 20$

_____ 13. An artist's canvas forms a golden rectangle. The longer side of the canvas is 33 inches. How long is the shorter side? Round your answer to the nearest tenth of an inch.
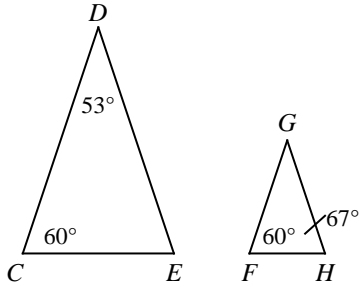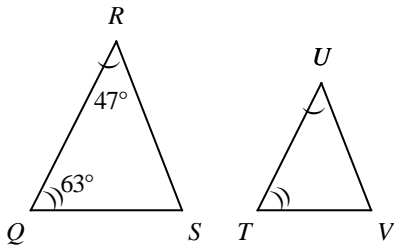
a. 20.4 in.   b. 53.4 in.   c. 16.5 in.   d. 66 in.

____ 14. Write a similarity statement for the triangles.

a. $\triangle CDE \sim \triangle FHG$ c. $\triangle CDE \sim \triangle FGH$
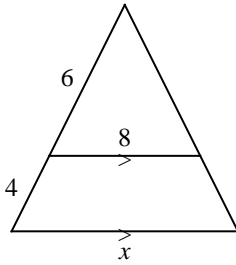b. $\triangle CED \sim \triangle FGH$ d. $\triangle EDC \sim \triangle FGH$

____ 15. $\triangle QRS \sim \triangle TUV$. What is the measure of $\angle V$?

a. 70°   b. 110°   c. 250°   d. 35°

Explain why the triangles are similar. Then find the value of x.

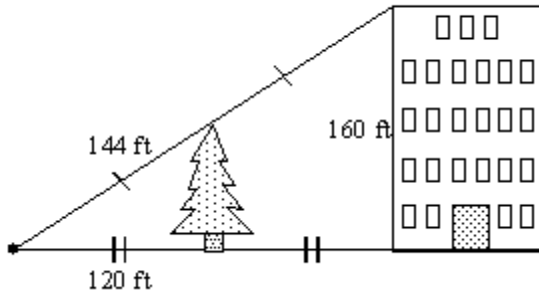____ 16.

Not drawn to scale

a. SSS Postulate; $5\dfrac{1}{3}$ c. SAS Postulate; $13\dfrac{1}{3}$

b. AA Postulate; $13\dfrac{1}{3}$ d. AA Postulate; $5\dfrac{1}{3}$

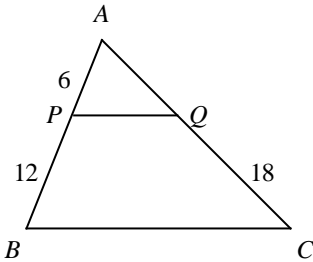_____ 17. Use the information in the diagram to determine the height of the tree to the nearest foot.

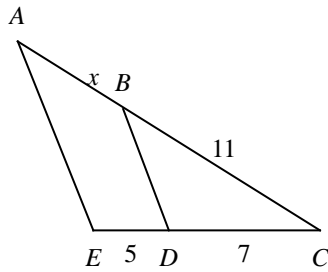
a. 80 ft b. 264 ft c. 60 ft d. 72 ft

_____ 18. 5 and 6

a. 30 b. 6 c. $\sqrt{35}$ d. $\sqrt{30}$

_____ 19. Given: $PQ \parallel BC$. Find the length of $\overline{AQ}$. The diagram is not drawn to scale.
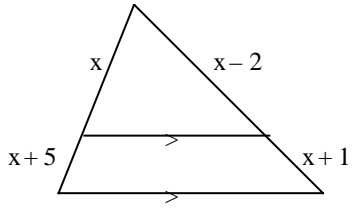

a. 11 b. 12 c. 18 d. 9

_____ 20. Given $\overline{AE} \parallel \overline{BD}$, solve for x. The diagram is not drawn to scale.

a. $7\dfrac{6}{7}$ b. $3\dfrac{2}{11}$ c. $15\dfrac{2}{5}$ d. $26\dfrac{2}{5}$

Solve for *x*.

_____ 21.

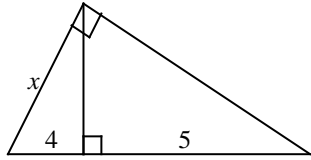a. 5   b. 2.5   c. 7.5   d. 10

_____ 22.

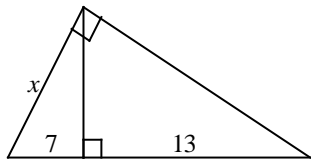Not drawn to scale

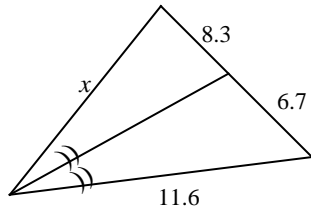a. 20   b. 6   c. $2\sqrt{5}$ d. 9

_____ 23.

a. $2\sqrt{35}$ b. $2\sqrt{65}$ c. $2\sqrt{5}$ d. $\sqrt{91}$

_____ 24. Find *x* to the nearest tenth.

Not drawn to scale

a. 4.8   b. 14.4   c. 9.4   d. 1.7

The figures are similar. The area of one figure is given. Find the area of the other figure to the nearest whole number.

_____ 25. A rectangular napkin costs $3.25. A similar tablecloth is five times longer and five times wider. How much would you expect to pay for the tablecloth?

a. $81.25   b. $48.75   c. $16.25   d. $32.50