

Chapter 6 Test Review
Similarity

NAME: _____

1. A class is attended by 12 boys and 24 girls. Write the ratio of girls to students in the class as a fraction in lowest terms.

2. Monika sold 120 adult tickets and 180 student tickets to a school play. Write the ratio of student tickets to adult tickets in lowest terms.

3. Write the ratio of vowels to consonants in GALIANO in lowest terms.

[A] 3:4 [B] 2:7 [C] 4:3 [D] 7:2

4. Rewrite the fraction so that the numerator and denominator have the same units.

$\frac{3 \text{ yards}}{48 \text{ inches}}$
Then simplify.

5. Fill in the blank: 6 pencils are to \$2.40 as _____ pencils are to \$3.60.

6. Solve: $\frac{26}{25} = \frac{x}{19}$

7. If $\frac{3}{x-4} = \frac{7}{x}$, then _____.

[A] $x = 4$ [B] $x = 3$ [C] $x = 7$ [D] $x = \frac{7}{3}$

8. Solve the proportion $\frac{5}{x-1} = \frac{7}{x}$.

9. Mr. Jones has taken a survey of college students and found that 1 out of 4 students are liberal arts majors. If a college has 8000 students, what is the best estimate of the number of students who are liberal arts majors?

[A] 32,000 [B] 200 [C] 160 [D] 2000

10. A national forest service wanted to estimate the number of deer in a particular national park. They caught and tagged 56 deer and released them back into the park. Later they selected a sample of 476 deer. Of the 476 deer, 28 were tagged. Assuming that the proportion of tagged deer in the sample holds for all deer in the forest, what is the best estimate of the number of deer in the park?

[A] 6664 [B] 952 [C] 954 [D] 53,312

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11. A worker in an assembly line takes 7 hours to produce 22 parts. At that rate, how many parts can she produce in 21 hours?

- [A] 66 parts [B] 132 parts [C] 4 parts [D] 462 parts

12. The batting average is the ratio of the number of hits to the number of at bats. A baseball player with 512 at bats needs how many hits to have a batting average of at least .275?

13. A student took a geometry test worth 200 points. How many points did she earn if she got 79% of the answers correct?

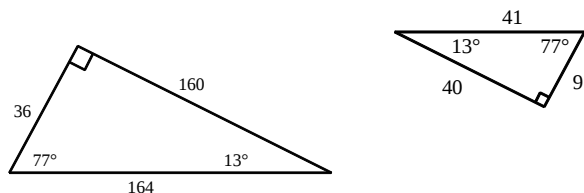
14. Assume the exchange rate of Canadian dollars to American dollars is 1 to 0.77. If a stove costs \$529.50 in Canadian dollars, then what would its price be in American dollars?

- [A] \$506.50 [B] \$452.50 [C] \$687.66 [D] \$407.72

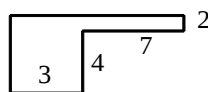
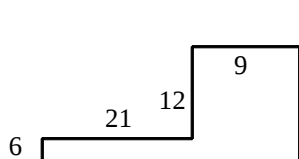
15. There is a law stating that “The ratio of the width to length for the American flag should be 10 to 19.” Is a flag measuring 40 by 76 feet of the correct ratio?

16. A wheelchair ramp has a slope of $\frac{1}{10}$. If its rise is $5\frac{1}{2}$ feet, what is its run?

17. Are the two triangles (not drawn to scale) similar? If so, explain why they are.



18. Are the two polygons similar? (They are not drawn to scale, but assume all angles are 90°.) If not, explain why.



[A] No; $\frac{3}{9} \neq \frac{4}{21}$

[B] Yes

[C] No; $\frac{3}{9} \neq \frac{4}{6}$

[D] not enough info

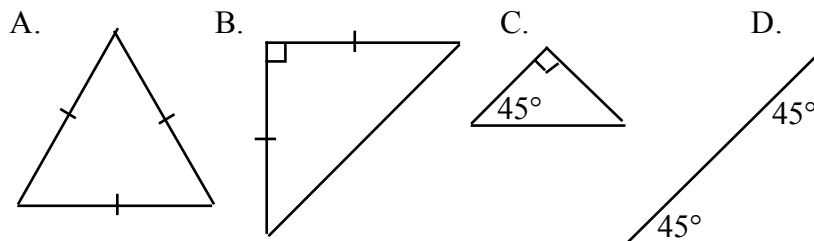
19. If two polygons are SIMILAR, then the corresponding sides must be ____.

- [A] proportional [B] similar [C] congruent [D] parallel

20. If two polygons are SIMILAR, then the corresponding angles must be ____.

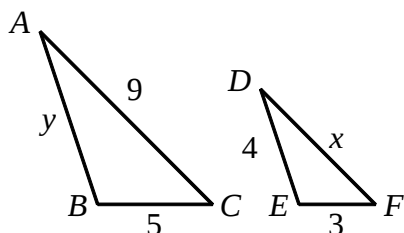
- [A] supplementary [B] complementary [C] linear pairs [D] congruent

21. Which triangle is not similar to any of the others?

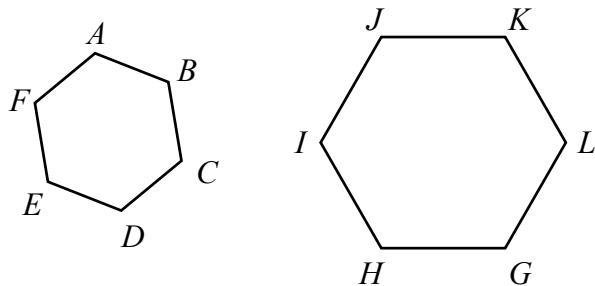


22. $\triangle PQR$ and $\triangle XYZ$ are similar with $m\angle P = m\angle X$ and $m\angle Q = m\angle Y$. If PQ , QR , and PR are 7 inches, 9 inches, and 10 inches respectively, and XY is 8.2 inches, find YZ (Answer to the nearest tenth.)

23. Given that $\triangle ABC \sim \triangle DEF$, solve for x and y .



24. In the figure (not drawn to scale), the hexagon $ABCDEF$ is similar to hexagon $JKLMGH$. Find length BC to the nearest tenth if $KL = 15$, $LG = 18$, and $CD = 8$.



25. If $\triangle ABC \sim \triangle DEF$ and $\triangle DEF \sim \triangle GHI$, then _____.

- [A] $AB = GH$ [B] $\angle BCA \cong \angle GHI$ [C] $\triangle ABC \sim \triangle GHI$ [D] $\triangle ABC \cong \triangle GHI$

26. A photo needs to be enlarged from an original with a length of 5 inches and a width of 3 inches to a size where the new width is 15 inches. What is the new length? What is the scale factor of new photo to old photo?

27. Standard sizes of photo enlargements are not usually similar. Assume that all sizes were similar to the 5 in. $\times$ 7 in. size, where 5 in. is the width. What would be the corresponding length of an 8 in. wide enlargement? (Note: 8 in. $\times$ 10 in. is the standard offering.)

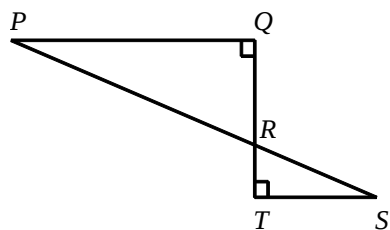
28. One standard photograph size is a 4 in. $\times$ 5 in. rectangle. Which of these other standard rectangular sizes is similar to it?

- [A] $2\frac{1}{2}$ in. $\times$ $3\frac{1}{2}$ in. [B] 5 in. $\times$ 7 in. [C] 11 in. $\times$ 14 in. [D] 8 in. $\times$ 10 in.

29. The perimeter of $\triangle PQR$ is 56, $PQ = 16$, $\triangle PQR \sim \triangle STU$, and $ST = 8$. What is the perimeter of $\triangle STU$?

- [A] 28 [B] 2.3 [C] 8.3 [D] 14

30. In the figure shown, $PQ = 14$ centimeters, $ST = 7$ centimeters and $m\angle QRP = 70^\circ$. Find $m\angle S$.



31. One way to show that two triangles are similar is to show that _____.

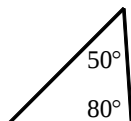
- [A] two angles of one are congruent to two angles of the other
[B] two sides of one are proportional to two sides of the other
[C] a side of one is congruent to a side of the other
[D] an angle of one is congruent to an angle of the other

32. Which triangle is NOT similar to any of the others?

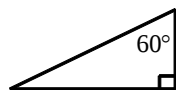
[A]



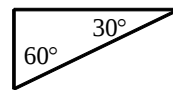
[B]



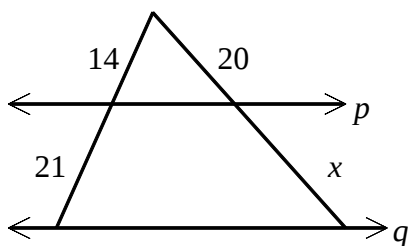
[C]



[D]

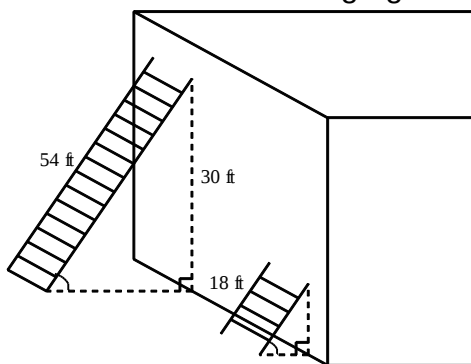


33. If $p \parallel q$, solve for x .



34. A building casts a shadow 216 meters long. At the same time, a pole 3 meters high casts a shadow 12 meters long. What is the height of the building?

35. Two ladders are leaning against a wall at the same angle as shown.



How far up the wall does the shorter ladder reach?

[A] 8 ft

[B] 10 ft

[C] 20 ft

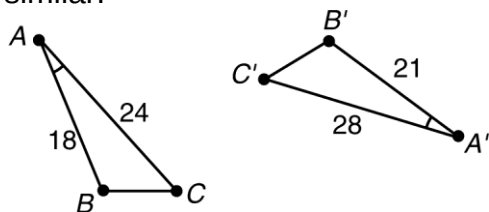
[D] 14 ft

36. In $\triangle PQR$, $PQ = 13$, $QR = 12$, and $RP = 11$. In $\triangle TUS$, $US = 26$, $ST = 26$, and $TU = 22$. State whether the triangles are similar, and if so, write a similarity statement.

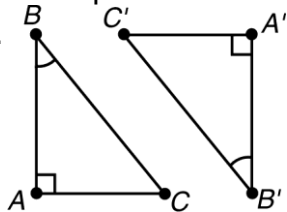
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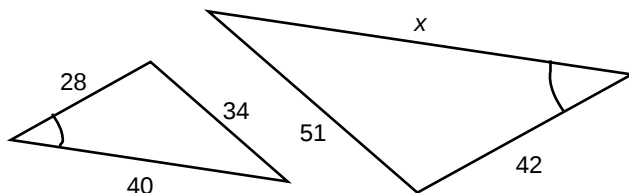
37. State the postulate or theorem that can be used to prove that the two triangles are similar.



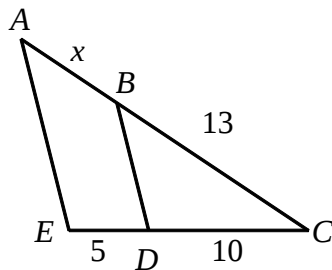
38. State the postulate or theorem that can be used to prove that the two triangles are similar.



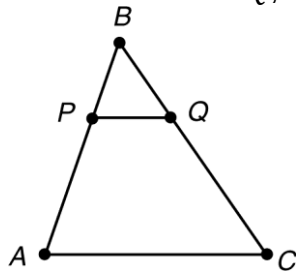
39. What value of x will make the two triangles similar?



40. Given $\overline{AE} \parallel \overline{BD}$. Solve for x .



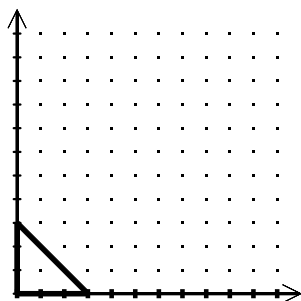
41. If $\triangle ABC \sim \triangle PBQ$, then which of the following proportions is NOT true?



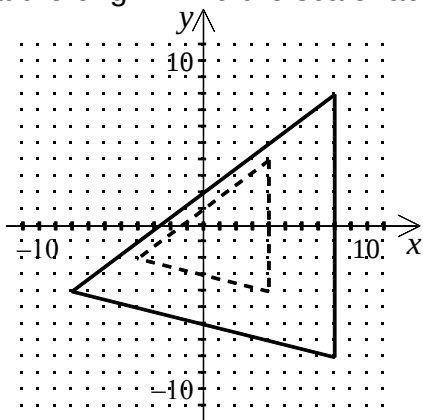
- [A] $\frac{PB}{AB} = \frac{PQ}{AC}$ [B] $\frac{AP}{PB} = \frac{AC}{PQ}$ [C] $\frac{AP}{PB} = \frac{CQ}{QB}$ [D] $\frac{AC}{PQ} = \frac{CB}{QB}$

42. Graph $\overline{DE}$ with $D(2, -1)$ and $E(1, 4)$. Then graph its dilation using the origin as the center and a scale factor of 1.5.

43. Draw the image of the figure for a dilation centered at the origin with scale factor 2.



44. The dashed triangle is the image of the solid triangle formed by a dilation centered at the origin. Find the scale factor of the dilation.



ANSWER KEY FOR CHAPTER 6 REVIEW

[1] $\frac{2}{3}$

[2] 3:2

[3] [C]

[4] $\frac{108 \text{ in.}}{48 \text{ in.}} = \frac{9}{4}$

[5] 9

[6] $19\frac{19}{25}$

[7] [C]

[8] $x = \frac{7}{2}$

[9] [D]

[10] [B]

[11] [A]

[12] 141

[13] 158

[14] [D]

[15] yes

[16] 55 feet

[17] Yes; corresponding angles are equal in measure and ratios of corresponding sides are all equal.

[18] [B]

[19] [A]

[20] [D]

[21] A

[22] 10.5 in.

[23] $x = 5.4$, $y = 6.67$

[24] 6.7

[25] [C]

[26] new length = 25 inches;
scale factor = 5

[27] $\frac{56}{5} \text{ in.} = 11\frac{1}{5} \text{ in.}$

[28] [D]

[29] [A]

[30] 20°

[31] [A]

[32] [B]

[33] 30

[34] 54 meters

[35] [B]

[36] not similar

[37] SAS Similarity Theorem

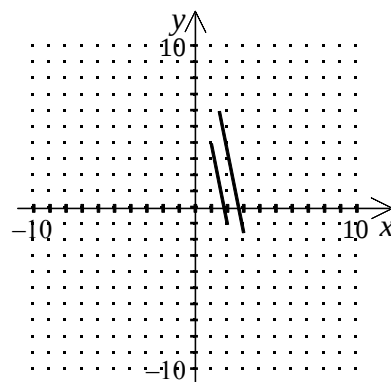
[38] AA Similarity Postulate

[39] 60

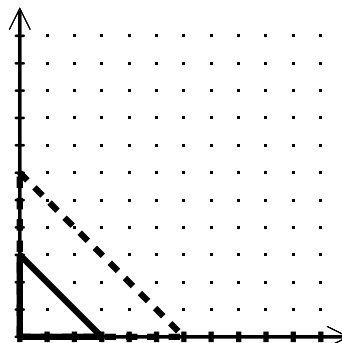
[40] $6\frac{1}{2}$

[41] [B]

[42]



[43]



[44] Scale factor: $\frac{1}{2}$