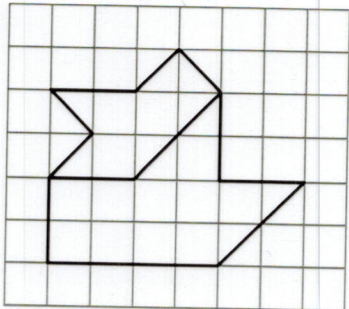


Answers for 6.3

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6.3 Skill Practice

1. congruent, proportional
2. Yes; no; if two polygons are congruent, corresponding angles are congruent and the scale factor is 1. If they are similar, corresponding angles are congruent but one polygon can be larger than the other since the scale factor does not have to be 1.
3. $\angle A \cong \angle L$, $\angle B \cong \angle M$,
 $\angle C \cong \angle N$;
 $\frac{AB}{LM} = \frac{BC}{MN} = \frac{CA}{NL}$
4. $\angle D \cong \angle P$, $\angle E \cong \angle Q$,
 $\angle F \cong \angle R$, $\angle G \cong \angle S$;
 $\frac{DE}{PQ} = \frac{EF}{QR} = \frac{FG}{RS} = \frac{GD}{SP}$
5. $\angle H \cong \angle W$, $\angle J \cong \angle X$,
 $\angle K \cong \angle Y$, $\angle L \cong \angle Z$;
 $\frac{HJ}{WX} = \frac{JK}{XY} = \frac{KL}{YZ} = \frac{LH}{ZW}$
6. D
7. similar; $RSTU \sim WXYZ$, $\frac{2}{1}$
8. similar; $\triangle CDE \sim \triangle TUV$, $\frac{5}{4}$
9. $\frac{5}{2}$
10. 27.5, 12, 65
11. 85, 34
12. 36 in.
13. The larger triangle's perimeter was doubled but should have been halved; perimeter of $B = 14$.
14. sometimes
15. always
16. sometimes
17. never
18. $x: 1$; since the order of the figures switched, simply switch the ratio.
19. altitude, 24
20. median, 9
21. $10\frac{2}{3}$ in., $13\frac{1}{3}$ in.
22. 6.4 in.
23. $\frac{11}{5}$
24. $AC = 22\frac{22}{25}$, $ED = 10$
25. $17\frac{3}{5}$
26. About 201, 41.6; the ratio of their areas is approximately equal to the scale factor squared.
27. No; in similar triangles corresponding angles are congruent.
28. D
29. 

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continued

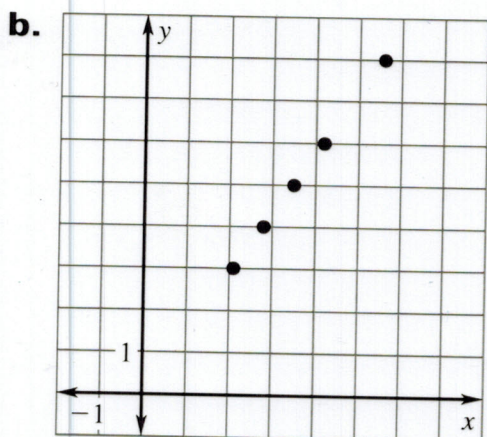
$\triangle ABC \sim \triangle ABC$. If $\triangle ABC \sim \triangle DEF$, then $\triangle DEF \sim \triangle ABC$. If $\triangle ABC \sim \triangle DEF$ and $\triangle DEF \sim \triangle HJK$, then $\triangle ABC \sim \triangle HJK$.

6.3 Problem Solving

31. No; the side lengths are not proportional.

32. yes; $\frac{1}{4}$

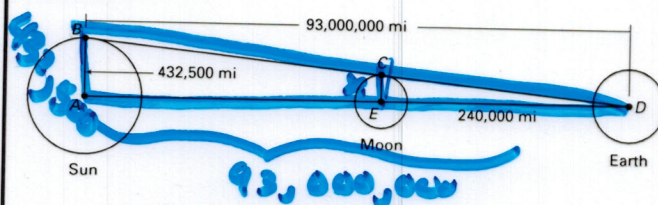
33. a. 2.8, 4.2, 5.6, 2.1



yes

c. $y = \frac{10}{7}x; \frac{10}{7}$; they are the same.

34. a.



b. *Sample answer:* Since the triangles are similar, the light from every point of the sun that is in $\triangle BDA$ is blocked by the moon before reaching Earth.

c. about 1116 mi

35. Yes; if $\ell = w$ then the larger and smaller image would be similar.

Sample answer: Let $\ell = 8$.

$$w = 8, \text{ and } a = 4; \frac{w}{w+a} = \frac{8}{12}$$

$$= \frac{2}{3}, \frac{\ell}{\ell+a} = \frac{8}{12} = \frac{2}{3}.$$

36. The ratio of the areas of similar figures is the square of the scale factor. *Sample answer:* Consider two rectangles, one 2×4 and the other 6×12 with scale factor

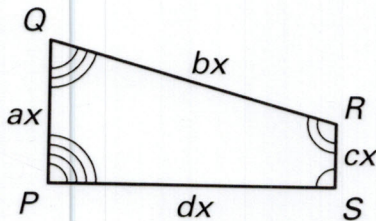
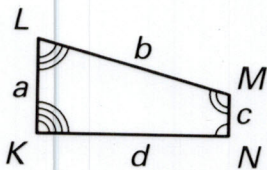
$$\frac{1}{3} \text{ and ratio of areas } \frac{8}{72} = \frac{1}{9},$$

$$\left(\frac{1}{3}\right)^2 = \frac{1}{9}.$$

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continued

- 38.**



you get $\frac{ax + bx + cx + dx}{a + b + c + d} = \frac{x(a + b + c + d)}{a + b + c + d} = x$.

39. $\frac{1 + \sqrt{5}}{2}; \frac{1 + \sqrt{5}}{1} = \frac{1}{\frac{1 + \sqrt{5}}{2} - 1}$

46. $<$ **47.** $=$ **48.** $>$

1. a. $\frac{1}{3}$; 18, 12

- d.** The ratio of areas is the square of the ratio of perimeters.

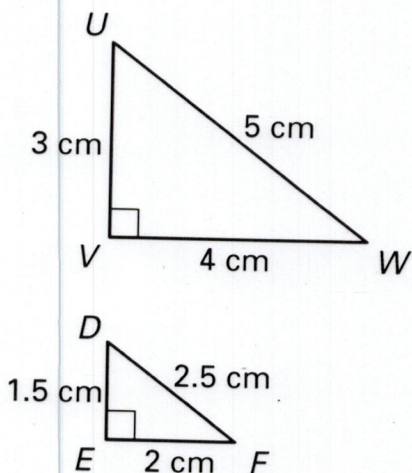
- 2.** 1562;

1	5	6	2
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Answers for 6.3 continued

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3. Sample:



Scale factor: $\frac{1}{2}$

4. a. 174 British pounds

b. \$322.22

5. a. about 6 in.

b. about 275 times

6. 7.2;

	7	.	2
<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

7. a. about 16 lb per person

b. about 64 lb; about ~~5~~ lb

c. about ~~16~~ apples

d. Yes. Sample answer: If apple production decreases due to weather conditions apples become less plentiful and the per capita consumption would decrease.