MODULE 16 Similarity and Transformations

LESSON 16-2

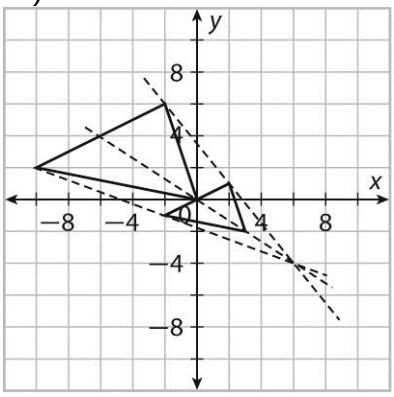
Practice and Problem Solving: A/B

1. Translate Circle *A* 1 unit left and 3 units up. Then dilate Circle *A* by a scale factor of $\frac{3}{4}$.
2. Dilate *ABC* by a scale factor of 1.5.
3. Rotate *GHIJ* 90° clockwise about the origin. Then dilate *GHIJ* by a scale factor of 3.
4. Dilate *ABCDE* by a scale factor of 0.5, with center at (−2, 2).
5. S
6. A
7. A
8. S
9. N
10. A

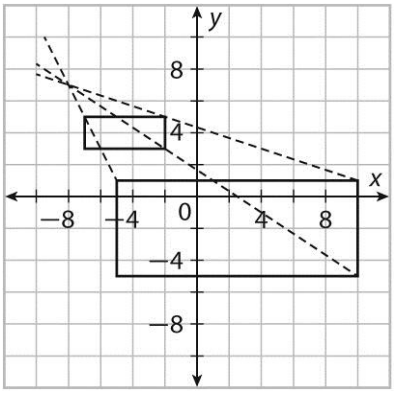
LESSON 16-3

Practice and Problem Solving: A/B

1. He has switched the side lengths of the triangles in the last ratio of the proportion.
2. Possible answers: $\frac{CD}{FG} = \frac{DE}{GH}$; $\frac{CD}{FG} = \frac{CE}{FH}$; $\frac{DE}{GH} = \frac{CE}{FH}$; $m\angle C = m\angle F$; $m\angle D = m\angle G$; $m\angle E = m\angle H$
3. No. The side lengths of all rhombuses are proportional, but the angles can vary.
4. $\angle CBD \cong \angle CAE$ by Corresponding Angles Theorem. $\angle C \cong \angle C$ by the Reflexive Property. So $\triangle CBD \cong \triangle CAE$ by AA.
5. $\frac{6}{14} = \frac{20}{CE}$; $CE = (20 \times 14) \div 6 \approx 46.7$ in.
6. (6, −4)



7. (−8, 7)



LESSON 16-4

Practice and Problem Solving: A/B

1. Possible answer: $\angle ACB$ and $\angle ECD$ are congruent vertical angles. $m\angle B = m\angle D = 100°$, so $\angle B \cong \angle D$. Thus, $\triangle ABC \sim \triangle EDC$ by AA.
2. Possible answer: Every equilateral triangle is also equiangular, so each angle in both triangles measures 60°. Thus, $\triangle TUV \sim \triangle WXY$ by AA.
3. Possible answer: It is given that $\angle JMN \cong \angle L$. $\frac{KL}{MN} = \frac{JL}{JM} = \frac{4}{3}$. Thus, $\triangle JLK \sim \triangle JMN$ by SAS.
4. Possible answer: $\frac{PQ}{UT} = \frac{QR}{TS} = \frac{PR}{US} = \frac{3}{5}$. Thus, $\triangle PQR \sim \triangle UTS$ by SSS.
5. Possible answer: $\angle C \cong \angle C$ by the Reflexive Property. $\angle CGD$ and $\angle F$ are right angles, so they are congruent. Thus, $\triangle CDG \sim \triangle CEF$ by AA. $DE \approx 9.75$.