# **Math 8 B Unit Test Guide**

## Transformations and Similarity Unit Test

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| **Item** | **Lesson Coverage** | **Objective** | **Lesson Page** | **Assessment Item** |
| 1 | Lesson 2: Dilations | Describe the effect of dilations of line segments on the coordinate plane | p. 1-6 | *Use the image to answer the question.*Determine the scale factor used in the dilation of line segment *AB*, centered at the origin.Answer: 4[Transformations and Similarity Unit Test Item #1 | Desmos](https://www.desmos.com/geometry/zsvbefhifq) |
| 2 | Lesson 2: Dilations | Describe the effect of dilations of lines on the coordinate plane | p. 7-12 | *Use the image to answer the question.*Determine the scale factor used in the dilation of line *AB*, with a center point of dilation at the origin.Answer: $\frac{1}{3}$[Transformations and Similarity Unit Test Item #2 | Desmos](https://www.desmos.com/geometry/tj4plxadaj) |
| 3 | Lesson 2: Dilations | Describe the effect of dilations on two-dimensional figures, using coordinates. | p. 13-18 | Triangle ABC has vertices point A (-2, -2), point B (-4, -3), and point C (-2, -5). Find the coordinates of A’, B’, and C’ after a dilation with a scale factor of 3 and a center point of dilation at the origin.Answer:$$A’=(-6, -6)$$$$B’=(-12, -9)$$$$C’=(-6, -15)$$[Transformations and Similarity Unit Test Item #3 | Desmos](https://www.desmos.com/geometry/rzuqditeep) |
| 4 | Lesson 3: Similar Figures | Describe two-dimensional figures as being similar to another figure if the second figure can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. | p. 1-8 | *Use the image to answer the question.*Which figure is similar to Figure 1?Answer: 3 |
| 5 | Lesson 3: Similar Figures | Describe two-dimensional figures as being similar to another figure if the second figure can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. | p. 1-8 | *Use the image to answer the question.*Which figure is similar to Figure 1?Answer: 5 |
| 6 | Lesson 3: Similar Figures | Given two similar two-dimensional figures, describe a sequence of transformations that exhibits the similarity between them. | p. 9-15 | *Use the image to answer the question.*Describe the sequence of transformations that exhibits the similarity between Figures 1 and 2.Answer: dilation and reflection |
| 7 | Lesson 6: Scale Drawings | Relate scale drawings to dilations of geometric figures. | p. 1-6 | *Use the image to answer the question.*Which scale drawing is a dilation that increased the size of the original object it represents?Answer: 3 |
| 8 | Lesson 6: Scale Drawings | Dilate geometric figures using scale factors that are positive rational numbers. | p. 7-13 | If you would like to dilate a square with a side length of 8 units to create a square with a side length of 20 units, what scale factor should you use? Write your answer in decimal form.Answer: 2.5[Transformations and Similarity Unit Test Item #8 | Desmos](https://www.desmos.com/geometry/xgqfaxedzh) |
| 9 | Lesson 6: Scale Drawings | Dilate geometric figures using scale factors that are positive rational numbers. | p. 7-13 | You use scale factor of $\frac{3}{4}$ to create a dilated circle with a radius of 9 inches. What is the radius of the original circle?Answer: 12 |
| 10 | Lesson 7: Sides of Similar Figures | Use proportional reasoning to find the missing side lengths of two similar figures. | All | *Use the image to answer the question.*What is the length of *x* in decimal form to the nearest hundredth?Answer: 14.82 inches |
| 11 | Lesson 8: Angles of Similar Triangles | Describe two similar figures as having congruent corresponding angles. | p. 1-6 | $ΔCDE\~ΔPQR. m∠C=13°, m∠D=65°$. What are the measures of angles, *P*, *Q*, and *R*?Answer: $$m∠P=13°$$$$m∠Q=65°$$$$m∠R=102°$$ |
| 12 | Lesson 8: Angles of Similar Triangles | Describe two similar figures as having congruent corresponding angles. | p. 1-6 | $ΔXYZ\~ΔRST. m∠X=50°, m∠S=79°$. What is the measure of angle *T*?Answer: $m∠T=51°$ |
| 13 | Lesson 8: Angles of Similar Triangles | Use informal arguments to establish facts about the angle-angle criterion for similarity of triangles. | p. 7-13 | Given $ΔABC\~ΔDEF. m∠A=52°, m∠E=11°$, what is the measure of angle C*?*Answer: $m∠C=117°$ |
| 14 | Lesson 8: Angles of Similar Triangles | Use informal arguments to establish facts about the angle-angle criterion for similarity of triangles. | p. 7-13 | Given $ΔPQR\~ΔLMN. m∠Q=113°, m∠R=26°$, what is the measure of angle *N?*Answer: $m∠N=26°$ |
| 15 | Lesson 2: Dilations | Describe the effect of dilations of lines on the coordinate plane | p. 7-12 | Line *AB* is on the coordinate plane and does not pass through the origin. Line *AB* is dilated with a scale factor of 3 and a center of dilation at the origin to create line *A’B’*. Describe the effect of the dilation on line *AB*. In particular, make sure to describe the relative location and size of line *A’B’* compared to line *AB*. If line *AB* was dilated with a scale factor of $\frac{1}{3}$, how would your answer change?Answer: The student should explain that the distance between points *A’* and *B’* will change based on the scale factor. If the scale factor is 3, the distance between *A’* and *B’* will increase; if the scale factor is $\frac{1}{3}$ , the distance between *A’* and *B’* will decrease. The student should also mention that the location of the line will change depending on the scale factor. When the scale factor is 3, line *A’B’* will be farther away from the origin than line *AB*. When the scale factor is $\frac{1}{3}$, line *A’B’* will be closer to the origin than line *AB*. |