

Dilations Worksheet Answer Key

Geometry
Dilations Worksheet

State whether a dilation with the given scale factor is a reduction or an enlargement.

1. $k = 3$

Enlarge

2. $k = \frac{1}{3}$

Reduce

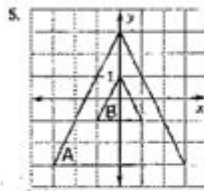
3. $k = \frac{5}{4}$

Enlarge

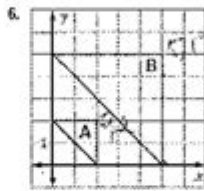
4. $k = 0.93$

Reduce

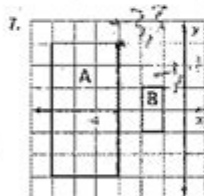
Determine whether the dilation from Figure A to Figure B is a reduction or an enlargement. Then find its scale factor.



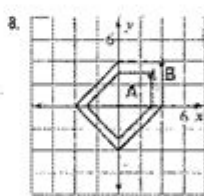
Reduction $k = \frac{1}{2}$



Enlargement $k = \frac{2}{1}$



Reduction $k = \frac{1}{2}$



Enlargement $k = \frac{2}{1}$

Point A is a vertex of a polygon. Point R is the image of A after the dilation. Find the scale factor of the dilation.

9. A (3, 4) and R (9, 12)

$A \rightarrow R$
 $\frac{9}{3} = 3$
 $\frac{12}{4} = 3$
 $k = 3$

10. A (8, 12) and R (6, 8)

$\frac{6}{8} = \frac{3}{4}$
 $\frac{8}{12} = \frac{2}{3}$
 $k = \frac{2}{3}$

11. A (-2, -3) and R (-10, -15)

$\frac{-10}{-2} = 5$
 $\frac{-15}{-3} = 5$
 $k = 5$

A line segment has the given endpoints. Use the scale factor to write the ordered pairs after the dilation.

12. A (1, 1), B (3, 1), and $k = 2$

$A'(2, 2)$ $B'(6, 2)$

13. A (4, 4), B (8, 12), and $k = \frac{1}{2}$

$A'(2, 2)$ $B'(4, 6)$

14. A (0, 0), B (-3, 2), and $k = 5$

$A'(0, 0)$ $B'(-15, 10)$

Dilations Worksheet Answer Key: Your Guide to Mastering Transformations

Are you struggling with dilations? Feeling lost in a sea of scale factors and coordinate transformations? You're not alone! Many students find dilations challenging, but with the right guidance and practice, mastering this geometric concept becomes significantly easier. This comprehensive guide provides you with a detailed explanation of dilations, along with a walkthrough of common dilation worksheet problems and, most importantly, their answer keys. We'll cover different types of dilation problems and offer strategies to solve them effectively. Let's unlock the mysteries of dilations together!

Understanding Dilations: A Quick Refresher

Before diving into the answer keys, let's quickly review the fundamental concept of dilations. A dilation is a transformation that changes the size of a figure, but not its shape. It's like zooming in or out on a picture. The key components of a dilation are:

Center of Dilation: This is the fixed point around which the figure is enlarged or reduced.

Scale Factor: This number determines the size change. A scale factor greater than 1 enlarges the figure (an enlargement), while a scale factor between 0 and 1 reduces the figure (a reduction). A scale factor of 1 results in no change.

Types of Dilation Problems

Dilations worksheets typically present problems in a few common formats:

Coordinate Plane Dilations: These involve finding the new coordinates of a figure's vertices after dilation, given the center of dilation and the scale factor.

Geometric Figure Dilations: These problems focus on understanding how the lengths and areas of figures change after dilation. You might be asked to calculate the new perimeter or area of a dilated shape.

Word Problems: These require you to interpret a real-world scenario and apply the concept of dilation to solve the problem.

Dilations Worksheet Answer Key: Example Problems and Solutions

Let's work through some example problems to illustrate the process. Remember, the key to success lies in understanding the principles, not just memorizing answers.

Example 1: Coordinate Plane Dilation

Problem: A triangle with vertices $A(2, 4)$, $B(6, 2)$, and $C(4, 0)$ is dilated with a center of dilation at the origin $(0, 0)$ and a scale factor of 2. Find the coordinates of the vertices of the dilated triangle $A'B'C'$.

Solution: To find the coordinates of the dilated triangle, multiply the coordinates of each vertex by the scale factor:

$$\begin{aligned}A'(22, 42) &= A'(4, 8) \\ B'(62, 22) &= B'(12, 4) \\ C'(42, 02) &= C'(8, 0)\end{aligned}$$

Therefore, the coordinates of the dilated triangle are $A'(4, 8)$, $B'(12, 4)$, and $C'(8, 0)$.

Example 2: Geometric Figure Dilation

Problem: A square with side length 5 cm is dilated by a scale factor of 3. What is the area of the dilated square?

Solution: The side length of the dilated square will be $5 \text{ cm} \cdot 3 = 15 \text{ cm}$. The area of the dilated square is $15 \text{ cm} \cdot 15 \text{ cm} = 225 \text{ cm}^2$.

Example 3: Word Problem Dilation

Problem: A photograph measuring 4 inches by 6 inches is enlarged to create a poster. If the scale factor is 5, what are the dimensions of the poster?

Solution: The dimensions of the poster are $4 \text{ inches} \cdot 5 = 20 \text{ inches}$ and $6 \text{ inches} \cdot 5 = 30 \text{ inches}$. The poster measures 20 inches by 30 inches.

Strategies for Solving Dilation Problems

Visualize: Draw diagrams to help you visualize the transformation.

Break it Down: Divide complex problems into smaller, manageable steps.

Check Your Work: Always verify your answers to ensure accuracy.

Practice: The more you practice, the more comfortable you'll become with dilations.

Conclusion

Mastering dilations requires understanding the underlying concepts and consistent practice. By working through various problems and applying the strategies outlined above, you can build confidence and achieve success in this area of geometry. Remember to always carefully consider the center of dilation and the scale factor when solving dilation problems. Use the examples provided as

a template to approach similar questions on your worksheets. Good luck!

FAQs

1. What happens if the scale factor is negative? A negative scale factor results in a dilation and a reflection across the center of dilation.
2. Can the center of dilation be outside the figure? Yes, the center of dilation can be anywhere on the plane, including outside the original figure.
3. How does dilation affect the angles of a figure? Dilation does not change the angles of a figure. The angles remain congruent.
4. Is there a formula for finding the area of a dilated figure? The area of a dilated figure is the area of the original figure multiplied by the square of the scale factor.
5. Where can I find more dilation worksheets? You can find many free dilation worksheets online by searching on educational websites or using keywords like "dilation worksheets pdf" or "geometry dilation practice".

dilations worksheet answer key: N-Gen Math 8: Bundle - 20 Kirk Weiler, 2021-10

dilations worksheet answer key: **The Algebra Teacher's Guide to Reteaching Essential Concepts and Skills** Judith A. Muschla, Gary R. Muschla, Erin Muschla, 2011-10-25 Easy to apply lessons for reteaching difficult algebra concepts Many students have trouble grasping algebra. In this book, bestselling authors Judith, Gary, and Erin Muschla offer help for math teachers who must instruct their students (even those who are struggling) about the complexities of algebra. In simple terms, the authors outline 150 classroom-tested lessons, focused on those concepts often most difficult to understand, in terms that are designed to help all students unravel the mysteries of algebra. Also included are reproducible worksheets that will assist teachers in reviewing and reinforcing algebra concepts and key skills. Filled with classroom-ready algebra lessons designed for students at all levels The 150 mini-lessons can be tailored to a whole class, small groups, or individual students who are having trouble This practical, hands-on resource will help ensure that students really get the algebra they are learning

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dilations worksheet answer key: Discovering Advanced Algebra Jerald Murdock, Ellen Kamischke, 2010 Changes in society and the workplace require a careful analysis of the algebra curriculum that we teach. The curriculum, teaching, and learning of yesterday do not meet the needs of today's students.

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dilations worksheet answer key: If You Hopped Like A Frog David M. Schwartz, 2017-03-28
How far could you hop? If you hopped like a frog...you could jump from home plate to first base in one mighty leap! Did you know that a frog can jump 20 times its body length? Or that an ant can lift an object 50 times its own weight? Read this book and find out what you could do -- if you had the amazing abilities of animals! And there are endless possibilities for making more hilarious comparisons of your own. Get ready for ratio and proportion like you've never seen them before!

dilations worksheet answer key: Strengthening Forensic Science in the United States
National Research Council, Division on Engineering and Physical Sciences, Committee on Applied and Theoretical Statistics, Policy and Global Affairs, Committee on Science, Technology, and Law, Committee on Identifying the Needs of the Forensic Sciences Community, 2009-07-29 Scores of talented and dedicated people serve the forensic science community, performing vitally important work. However, they are often constrained by lack of adequate resources, sound policies, and national support. It is clear that change and advancements, both systematic and scientific, are needed in a number of forensic science disciplines to ensure the reliability of work, establish enforceable standards, and promote best practices with consistent application. Strengthening Forensic Science in the United States: A Path Forward provides a detailed plan for addressing these needs and suggests the creation of a new government entity, the National Institute of Forensic Science, to establish and enforce standards within the forensic science community. The benefits of improving and regulating the forensic science disciplines are clear: assisting law enforcement officials, enhancing homeland security, and reducing the risk of wrongful conviction and exoneration. Strengthening Forensic Science in the United States gives a full account of what is needed to advance the forensic science disciplines, including upgrading of systems and organizational structures, better training, widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. While this book provides an essential call-to-action for congress and policy makers, it also serves as a vital tool for law enforcement agencies, criminal prosecutors and attorneys, and forensic science educators.

dilations worksheet answer key: Springboard Mathematics College Entrance Examination Board, 2014 SpringBoard Mathematics is a highly engaging, student-centered instructional program. This revised edition of SpringBoard is based on the standards defined by the College and Career Readiness Standards for Mathematics for each course. The program may be used as a core curriculum that will provide the instructional content that students need to be prepared for future mathematical courses.

dilations worksheet answer key: Which One Doesn't Belong? Christopher Danielson, 2019-02-12 Talking math with your child is simple and even entertaining with this better approach to shapes! Written by a celebrated math educator, this innovative inquiry encourages critical thinking and sparks memorable mathematical conversations. Children and their parents answer the same question about each set of four shapes: Which one doesn't belong? There's no one right answer--the important thing is to have a reason why. Kids might describe the shapes as squished, smooshed, dented, or even goofy. But when they justify their thinking, they're talking math! Winner of the Mathical Book Prize for books that inspire children to see math all around them. This is one shape book that will both challenge readers' thinking and encourage them to think outside the box.--Kirkus Reviews, STARRED review

dilations worksheet answer key: Helping Children Learn Mathematics National Research Council, Division of Behavioral and Social Sciences and Education, Center for Education, Mathematics Learning Study Committee, 2002-07-31 Results from national and international assessments indicate that school children in the United States are not learning mathematics well enough. Many students cannot correctly apply computational algorithms to solve problems. Their

understanding and use of decimals and fractions are especially weak. Indeed, helping all children succeed in mathematics is an imperative national goal. However, for our youth to succeed, we need to change how we're teaching this discipline. *Helping Children Learn Mathematics* provides comprehensive and reliable information that will guide efforts to improve school mathematics from pre-kindergarten through eighth grade. The authors explain the five strands of mathematical proficiency and discuss the major changes that need to be made in mathematics instruction, instructional materials, assessments, teacher education, and the broader educational system and answers some of the frequently asked questions when it comes to mathematics instruction. The book concludes by providing recommended actions for parents and caregivers, teachers, administrators, and policy makers, stressing the importance that everyone work together to ensure a mathematically literate society.

dilations worksheet answer key: College Geometry Howard Whitley Eves, Howard Eves, 1995 College Geometry is divided into two parts. Part I is a sequel to basic high school geometry and introduces the reader to some of the important modern extensions of elementary geometry-extension that have largely entered into the mainstream of mathematics. Part II treats notions of geometric structure that arose with the non-Euclidean revolution in the first half of the nineteenth century.

dilations worksheet answer key: Medical Terminology Barbara A. Gyls, Barbara A. Gyls, MeD, CMA-A, Mary Ellen Wedding, 1999-02 Each chapter in the volume features outlines, objectives, line drawings, pronunciation keys and worksheets for immediate feedback. The book uses word-building and the body-systems approach to teach terminology. Medical records sections relate the content to real-life situations.

dilations worksheet answer key: 101 Two Truths and One Lie! Math Activities for Grades 6, 7, and 8 Mashup Math, 2020-02-28 [Color Cover; Black-and-White Interior] Are your lessons getting boring? Starting classes with Two Truths and One Lie (2T1L) activities is a great way to spark creative and critical student thinking that will last for an entire lesson and beyond! 2T1L activities help your kids to develop reasoning skills, make logical arguments, express their ideas in words, and engage with visual mathematics-which ultimately leads to deeper and more meaningful understanding of challenging topics and concepts. The daily activities found in this book can be applied to dozens of topics and are aligned with math learning standards typically covered in grades 6, 7, and 8, including: -performing operations on fractions -ratios, proportions, and percent -negatives and absolute values on the number line -combining like terms, substitution, and factoring -solving equations with one and two variables -data plots, graphs, and central tendency -linear and proportional relationships on tables and graphs -operations with negative numbers -factoring and the distributive property -angle relationships: complimentary and supplementary -transformations on the coordinate plane -translating algebraic expressions and equations -linear equations -Pythagorean Theorem The activities are organized by topic/standard and are easy to project at the front of your classroom or print. The book also includes a detailed explanation and examples of how to implement 2T1L activities with your kids and includes an answer key

dilations worksheet answer key: College Algebra Jay Abramson, 2018-01-07 College Algebra provides a comprehensive exploration of algebraic principles and meets scope and sequence requirements for a typical introductory algebra course. The modular approach and richness of content ensure that the book meets the needs of a variety of courses. College Algebra offers a wealth of examples with detailed, conceptual explanations, building a strong foundation in the material before asking students to apply what they've learned. Coverage and Scope In determining the concepts, skills, and topics to cover, we engaged dozens of highly experienced instructors with a range of student audiences. The resulting scope and sequence proceeds logically while allowing for a significant amount of flexibility in instruction. Chapters 1 and 2 provide both a review and foundation for study of Functions that begins in Chapter 3. The authors recognize that while some institutions may find this material a prerequisite, other institutions have told us that they have a cohort that need the prerequisite skills built into the course. Chapter 1: Prerequisites Chapter 2:

Equations and Inequalities Chapters 3-6: The Algebraic Functions Chapter 3: Functions Chapter 4: Linear Functions Chapter 5: Polynomial and Rational Functions Chapter 6: Exponential and Logarithm Functions Chapters 7-9: Further Study in College Algebra Chapter 7: Systems of Equations and Inequalities Chapter 8: Analytic Geometry Chapter 9: Sequences, Probability and Counting Theory

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dilations worksheet answer key: Mathematics Fabio Cirrito, Patrick Tobin, 2004

dilations worksheet answer key: **Anatomy and Physiology** J. Gordon Betts, Peter DeSaix, Jody E. Johnson, Oksana Korol, Dean H. Kruse, Brandon Poe, James A. Wise, Mark Womble, Kelly A. Young, 2013-04-25

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dilations worksheet answer key: *Pearl Harbor Attack: Hearings, Nov. 15, 1945-May 31, 1946* United States. Congress. Joint Committee on the Investigation of the Pearl Harbor Attack, 1946

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dilations worksheet answer key: **MathLinks 9** Bruce McAskill, 2009

dilations worksheet answer key: **Mathematics Higher Level (core)** John Gibson, Nigel Buckle, Fabio Cirrito, Iain Dunbar, 1999

Solved Question 1 10 pts Consider the graph to the right.

Question: Question 1 10 pts Consider the graph to the right. A (4,8) B (6, 7) Suppose you needed to dilate this figure on the same coordinate plane. Which of these dilations would create the ...

Solved unit nine transformations homework five dilations - Chegg

Question: unit nine transformations homework five dilations (origin of center) directions: graph and label each figure and image under a dilation with the given scale factor. Assume all dilations ...

Solved Dilations/Translations Worksheet a Directions: Answer

Dilations/Translations Worksheet a Directions: Answer the following questions to the best of your ability. For the y-axis, use the same scaling as the x-axis 1.

Solved Quadrilateral EFGH was dilated by a scale factor of 2 - Chegg

Quadrilateral EFGH was dilated by a scale factor of 2 from the center (1, 0) to create E'F'G'H'.

Which characteristic of dilations compares segment $F'H'$ to segment FH ...

Solved In 1603, German astronomer Christoph Scheiner began

Question: In 1603, German astronomer Christoph Scheiner began to copy and scale diagrams using an instrument that came to be known as the pantograph. By moving a pencil attached to ...

The table gives values of the functions f and g for | Chegg.com

Question: The table gives values of the functions f and g for selected values of x . The pattern of the values of f and g continue, repeating every interval of width 6, for $0 \leq x \leq 48$

Solved The table gives values of the functions f and g for - Chegg

The table gives values of the functions f and g for selected values of x . The pattern of the values of f and g continue, repeating every interval of width 6, for $0 \leq x \leq 48$. The graph of the function ...

Solved 7-1 Additional Practice Dilations 1. Draw a dilation - Chegg

Answer to 7-1 Additional Practice Dilations 1. Draw a dilation7-1 Additional Practice Dilations 1. Draw a dilation of $ABCD$ with E as the center and with sides, as ...

Solved Similarity & transformations Complete the similarity

Question: Similarity & transformations Complete the similarity statement. An equilateral triangle is sometime (s)/ (a)lway (s)/ (n)ever v similar to a scalene triangle, because we can sometime (s)/ ...

Solved $\triangle PQR$ was reflected and then dilated by a scale factor

B: Reflections and dilations preserve angle measure; therefore, the corresponding angles of $\triangle PQR$ $\triangle PQR$ was reflected and then dilated by a scale factor of 4 to create $\triangle P''Q''R''$.

Solved Question 1 10 pts Consider the graph to the right...

Question: Question 1 10 pts Consider the graph to the right. $A(4,8)$ $B(6,7)$ Suppose you needed to dilate this figure on the ...

Solved unit nine transformations homework five dilations - Chegg

Question: unit nine transformations homework five dilations (origin of center) directions: graph and label each figure ...

Solved Dilations/Translations Worksheet a Directions: Answe...

Dilations/Translations Worksheet a Directions: Answer the following questions to the best of your ability. ...

Solved Quadrilateral $EFGH$ was dilated by a scale factor of 2 - C...

Quadrilateral $EFGH$ was dilated by a scale factor of 2 from the center $(1, 0)$ to create $E'F'G'H'$. Which characteristic of ...

Solved In 1603, German astronomer Christoph Scheine...

Question: In 1603, German astronomer Christoph Scheiner began to copy and scale diagrams using an instrument ...

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