

activity sheet 1

Name _____

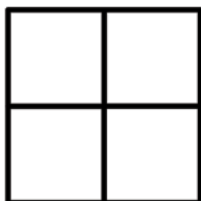
PERFECT SQUARES

Instructions: For today's activity, each group will be given a bag containing 25 tiles. Your group will use these tiles to investigate perfect squares.

Part 1: Answer questions 1–3 on your own. Once everyone in your group has answered them, discuss your answers as a group.

1. What do you believe a perfect square will be?

2. What do you notice about this square?



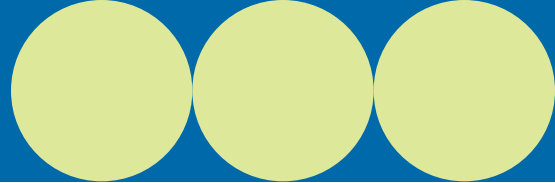
3. Do you believe that 4 could be a perfect square based on the picture? Why or why not?

Part 2: Work with your group, using the bag of tiles, to answer the remainder of the activity sheet.

1. Is 7 a perfect square? Why or why not?

2. Is 9 a perfect square? Why or why not?

activity sheet 1 (continued)



Name _____

3. Make another square. Make your square below using the tiles.

4. How many tiles did it take? What do you notice about the square you found?

5. What are the similarities and differences between the square you found and the one on the first page?

6. Redefine a perfect square based on what you have learned today.

activity sheet 2

Name _____

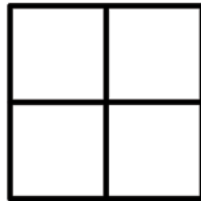
PERFECT SQUARES

Instructions: For today's activity, each group will be given a bag containing 40 tiles. Each group will use these tiles to investigate perfect squares.

Part 1: Answer questions 1-2 on your own. Once everyone in your group has answered them, discuss your answers as a group. Do not go past number 2 until instructed to do so.

1. What is a square?

2. What do you notice about this square?



Definition: A _____ is a number that can represent the area of a square having sides whose length is a whole number.

3. Do you believe that 4 could be a perfect square based on the picture above? Why or why not?

Part 2: Work with your group, using the bag of tiles, to answer the remainder of the activity sheet. Do not go on to the square roots section until instructed to do so.

1. Is 12 a perfect square? Why or why not?

2. Is 36 a perfect square? Why or why not?

3. Make another square. Make your square below using the tiles.

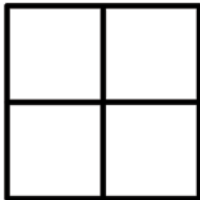
activity sheet 2 (continued)

Name _____

4. How many tiles did it take? What do you notice about the square you found?
5. What are the similarities and differences between the square you found and the one on the first page?
6. Give an example of a perfect square that will require more than 40 tiles. Explain how you know this is a perfect square.

SQUARE ROOTS

Definition: The square root of a number is a value that, when multiplied by itself, gives the number.

1. Based on the definition above what do you think perfect squares have to do with square roots?
2. How does the square root of 4 relate to the diagram below?

3. Can 24 have a square root that is a whole number? If yes, what is it? Explain how you know. (Hint: Use the squares in your bag to help you.)
4. Can 16 have a square root that is a whole number? If yes, what is it? Explain how you know.
5. Find a number larger than the square root of 40. Explain how you know that what you found is the square root.

activity sheet 3

Name _____

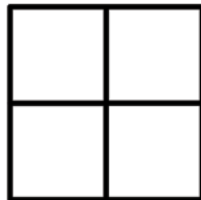
PERFECT SQUARES AND SQUARE ROOTS

Instructions: For today's activity, each group will be given a bag containing 40 tiles. You will use these tiles within each group to investigate perfect squares.

Part 1: To begin, answer questions 1–2 on your own. Once everyone in your group has answered them, discuss your answers as a group. Do not go past number 2 until instructed to do so.

1. What is a square?

2. What do you notice about this square?



Definition: A _____ is a number that can represent the area of a square having sides whose length is a whole number.

Definition: The _____ of a number is a value that, when multiplied by itself, gives the number.

3. Do you believe that 4 could be a perfect square based on the picture? Why or why not?

4. How do you think you could find a square root of 4?

activity sheet 3 (continued)

Name _____

Part 2: Work with your group, using the bag of tiles, to answer the remaining questions.

1. Is 12 a perfect square? Why or why not?

2. If 12 is a perfect square, what do you believe the square root of 12 would be? If not, do you believe it would still be possible to find the square root?

3. Is 36 a perfect square? Why or why not?

4. Make another square. Draw your square below and find the square root.

5. How many blocks did it take? What do you notice about the square you found?

6. What are the similarities and differences between the square you found and the one on the first page?

7. Give an example of a perfect square that will require more than 40 blocks. Explain how you know this is a perfect square and find the square root.

activity sheet 4

Name _____

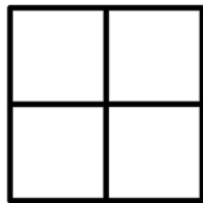
PERFECT SQUARES AND SQUARE ROOTS

Instructions: For today's activity each of your groups will be given a bag containing 40 tiles. Each group will use these tiles to investigate perfect squares.

Part 1: Answer questions 1-4 on your own. Once everyone in your group has answered them, discuss your answers as a group. Do not go past number 4 until instructed to do so.

1. What is a square?

2. What do you notice about this arrangement of four tiles?



3. Explain why you think the number 4 is called a perfect square. Use the tile diagram above.

4. How long is a side of the square in question 2? Explain the relationship between the side length of the square and the number of tiles used to create the square.

activity sheet 4 (continued)

Name _____

Part 2: Work with your group to answer the remaining questions. Use the bag of tiles.

1. Count out 12 tiles from your bag. Arrange the tiles to learn if 12 is or is not a perfect square. Sketch the diagram you created below using your tiles to explain your answer.
2. Using the 12 tiles again, rearrange them to form another (different from above) four-sided shape. Is it a square? How many four-sided shapes are possible using 12 tiles? Sketch all the different possible four-sided shapes you found using 12 tiles.
3. Count out 36 tiles from your bag. Use the process you followed above to determine if 36 is a perfect square. Provide a convincing argument as to why or why not 36 is a perfect square.
4. List all of the different side lengths you found as you created four-sided shapes from the 36 tiles. Explain what you notice about the side lengths and the number of tiles used.
5. Now choose tiles from the bag to create as many different squares as you can. Draw each square below and list the side lengths.
6. Find as many examples of perfect squares that you can that will require more than 40 tiles. Explain how you know each is a perfect square and find its square root.