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| **Standard(s):**  **8.G.6** | |
| **Questions** | **Answers** |
| 1. There are 11 miles between Durham and Chapel Hill. Twenty-eight miles separate Chapel Hill and Raleigh, and there are 25 miles between Raleigh and Durham. Do these three cities form a right triangle? |  |
| 2. Sean has three pieces of rope. They are 5 inches, 12 inches, and 13 inches. Can he make a right triangle out of the three pieces of rope? |  |
| 3. Square R, S, and T are arranged to create a right triangle. The area of square R is 64 cm2. The side length of square T is 10cm. What is the side length of square S? |  |
| 4. A triangle has the side measurements of 15ft, 20ft, and 35 ft. Is this triangle a right triangle? |  |
| 5. In the town of Centerville, the hospital and the post office are 3 blocks apart. The library is 5 blocks from the hospital. And the post office and the library are 4 blocks apart. Do these three landmarks form a right triangle? |  |

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| **Standard(s):**  **8.G.7** | |
| **Questions** | **Answers** |
| 1. A painter is trying to paint a house that is 15 feet tall. If he places the ladder 8 feet from the base of the house, will the painter’s 16-foot ladder be tall enough to reach the highest point? |  |
| 2. What is the area of Rectangle ABCD? |  |
| 3. Ivan is walking to Pedro’s house. Ivan leaves his house and walks 4 blocks north to Sonic. Then he walks 3 blocks west to Pedro’s house. On the way home, Ivan walks straight home from Pedro’s house. How many blocks shorter was Ivan’s walk home? |  |
| 4. Chris is putting volleyball net in his back yard. If he places two 3-meter tall poles, 8 meters apart, how far is it from the top of one pole to the bottom of the other? Round the answer to the nearest tenth.  http://images.clipartpanda.com/net-clipart-aTeKKnBAc.png |  |
| 5. The two legs of a right triangle have lengths 10 and b, and the hypotenuse has a length of 15. Is the length of b, rational or irrational? Explain your reasoning. |  |

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| **Standard(s):**  **8.G.8** | |
| **Questions** | **Answers** |
| 1. Find the approximate distance between the fire station and the post office. Round to the nearest tenth. |  |
| 2. Find the distance between (-3, 6) and (5, -4). Round to the nearest tenth. |  |
| 3. Classify triangle ABC as equilateral, scalene, or isosceles.  A = (-5, -2)  B=(-2, 2)  C= (-9, -5) |  |
| 4. Sam loves to read. How far does she live from the library? One unit equals one city block. Round the nearest tenth. |  |
| 5. Anderson wants to draw a line segment that is units long. If she starts at the origin, where should she draw the other point? |  |

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| **Standard(s):**  **8.EE.2** | |
| **Questions** | **Answers** |
| 1. A picture frame is 4inches by 6 inches. Find the diagonal length of the rectangle. Round to the nearest tenth. |  |
| 1. Find the area of the triangle. |  |
| 3. The area of a square is 121 square inches. What is the perimeter of the square? |  |
| 4. A baseball diamond is actually a square with sides of 90 feet.  If a runner tries to steal second base, how far must the catcher, at home plate, throw to get the runner “out”? |  |
| 5. If a 13-foot ladder rests 12 feet high on a wall, how far is the base of the ladder from the base of the wall? |  |

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| **Standard(s):**  **8.NS.2** | |
| **Questions** | **Answers** |
| 1. A right triangle has the side lengths of 9 and 7. Is the length of the hypotenuse a rational or irrational number? |  |
| 1. Compare the length of the hypotenuse in the triangles below. |  |
| 3. Approximate the side length of a right triangle that has a hypotenuse of 6in. and a leg of 4 in. Round your answer to the nearest hundredth. |  |
| 4. A TV size is named by its diagonal length. If a 50-inch TV is 2 feet tall, how wide is the TV? Is the length rational or irrational? |  |
| 5. The lawn in front of North Middle School is in the shape of a rectangle 30 yards long and 16 yards wide. How much shorter is your walk if you walk diagonally across the lawn rather than along two sides of it? |  |

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| **Standard(s):**  **8.G.6** | |
| **Questions** | **Answers** |
| 1. There are 11 miles between Durham and Chapel Hill. Twenty-eight miles separate Chapel Hill and Raleigh, and there are 25 miles between Raleigh and Durham. Do these three cities form a right triangle? | 1. No. The cities do not satisfy the Pythagorean Theorem. |
| 2. Sean has three pieces of rope. They are 5 inches, 12 inches, and 13 inches. Can he make a right triangle out of the three pieces of rope? | 2. Yes! |
| 3. Square R, S, and T are arranged to create a right triangle. The area of square R is 64 cm2. The side length of square T is 10cm. What is the side length of square S? | 3. 6 cm |
| 4. A triangle has the side measurements of 15ft, 20ft, and 35 ft. Is this triangle a right triangle? | 4. No. The measurements do not satisfy the Pythagorean Theorem. |
| 5. In the town of Centerville, the hospital and the post office are 3 blocks apart. The library is 5 blocks from the hospital. And the post office and the library are 4 blocks apart. Do these three landmarks form a right triangle? | 5. Yes! |

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| **Standard(s):**  **8.G.7** | |
| **Questions** | **Answers** |
| 1. A painter is trying to paint a house that is 15 feet tall. If he places the ladder 8 feet from the base of the house, will the painter’s 16-foot ladder be tall enough to reach the highest point? | 1. No, the ladder needs to be 17feet tall. |
| 2. What is the area of Rectangle ABCD? | 2. 168 inches2 |
| 3. Ivan is walking to Pedro’s house. Ivan leaves his house and walks 4 blocks north to Sonic. Then he walks 3 blocks west to Pedro’s house. On the way home, Ivan walks straight home from Pedro’s house. How many blocks shorter was Ivan’s walk home? | 3. 2 blocks |
| 4. Chris is putting volleyball net in his back yard. If he places two 3-meter tall poles, 8 meters apart, how far is it from the top of one pole to the bottom of the other? Round the answer to the nearest tenth.  http://images.clipartpanda.com/net-clipart-aTeKKnBAc.png | 4. 8.5 meters |
| 5. The two legs of a right triangle have lengths 10 and b, and the hypotenuse has a length of 15. Is the length of b, rational or irrational? Explain your reasoning. | 5. Irrational. The square root of 125 is irrational, because 125 is not a perfect square. |

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| **Standard(s):**  **8.G.8** | |
| **Questions** | **Answers** |
| 1. Find the approximate distance between the fire station and the post office. Round to the nearest tenth. | 1. About 11.3 |
| 2. Find the distance between (-3, 6) and (5, -4). Round to the nearest tenth. | 2. 12.8 units |
| 3. Classify triangle ABC as equilateral, scalene, or isosceles.  A = (-5, -2)  B=(-2, 2)  C= (-9, -5) | 3. Isosceles  The three sides measure 5 units, 5 units, and 9.9 units. |
| 4. Sam loves to read. How far does she live from the library? One unit equals one city block. Round the nearest tenth. | 4. 6.7 blocks |
| 5. Anderson wants to draw a line segment that is units long. If she starts at the origin, where should she draw the other point? | 5. Answers will vary.  (3,5) (5,3) (-3, 5) (-5,3) (-3, -5), (-5, -3) (3, -5) (5, -3) |

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| **Standard(s):**  **8.EE.2** | |
| **Questions** | **Answers** |
| 1. A picture frame is 4inches by 6 inches. Find the diagonal length of the rectangle. Round to the nearest tenth. | 1. 7.2 inches |
| 1. Find the area of the triangle. | 2. Area = 84 cm2 |
| 3. The area of a square is 121 square inches. What is the perimeter of the square? | 3. 44 inches |
| 4. A baseball diamond is actually a square with sides of 90 feet.  If a runner tries to steal second base, how far must the catcher, at home plate, throw to get the runner “out”? | 4. 127.3 feet |
| 5. If a 13-foot ladder rests 12 feet high on a wall, how far is the base of the ladder from the base of the wall? | 5. 5 feet |

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| **Standard(s):**  **8.NS.2** | |
| **Questions** | **Answers** |
| 1. A right triangle has the side lengths of 9 and 7. Is the length of the hypotenuse a rational or irrational number? | 1. Irrational |
| 1. Compare the length of the hypotenuse in the triangles below. | 2. Hypotenuse A is rational and hypotenuse B is irrational. Hypotenuse B is shorter than Hypotenuse A. |
| 3. Approximate the side length of a right triangle that has a hypotenuse of 6in. and a leg of 4 in. Round your answer to the nearest hundredth. | 3. inches |
| 4. A TV size is named by its diagonal length. If a 50-inch TV is 2 feet tall, how wide is the TV? Is the length rational or irrational? | 4. Irrational  43.9 inches |
| 5. The lawn in front of North Middle School is in the shape of a rectangle 30 yards long and 16 yards wide. How much shorter is your walk if you walk diagonally across the lawn rather than along two sides of it? | 5. Diagonal – 34 yards  It is 12 yards shorter to walk diagonally across the lawn. |