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| **Content: Exploring the Pythagorean Theorem** | | | |
| Identifies hypotenuse of a right triangle  The hypotenuse is the longest side of a right triangle and is opposite the 90° angle. | Describes the Pythagorean theorem    *a*2 + *b*2 = *c*2  In a right triangle, the sum of the areas of the two smaller squares equals the area of the larger square. | Uses the Pythagorean theorem to identify a right triangle  Do the lengths 3 cm, 4 cm, and 5 cm form a right triangle?  The numbers 3, 4, 5 are a Pythagorean triple. Since Pythagorean triples satisfy the Pythagorean theorem, these lengths form a right triangle.  32 + 42 = 9 + 16 = 25, which is 52 | Applies the Pythagorean theorem  to determine the length of the hypotenuse  A top of a slide is 6 m above the ground and the base of the slide is 4.5 m along the ground. How long is the slide?  The length of the slide represents the hypotenuse of a right triangle.  I can use the Pythagorean theorem.  *a*2 + *b*2 = *c*2  62 + 4.52 = *c*2  36 + 20.25 = *c*2  *c*2 = 56.25  *c* =  *c* = 7.5  The slide is 7.5 m long. |
| **Observations/Documentation** | | | |
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| **Competency: Representing and Connecting** | | | |
| Represents with concrete materials; connects areas of squares to triangle sides    “I see that when I multiply the length of a side by itself, I get the area of the square. I also see a relationship among the areas of the squares:  9 units2 + 16 units2 = 25 units2.” | Represents pictorially; connects patterns in areas across right triangles    “I see that the size and orientation of the right triangle don’t matter. This relationship is always true: Area of C = Area of A + Area of B.” | Represents in multiple ways, including algebra; connects visual, numerical, and algebraic representations    “I labelled the legs of the triangle *a* and *b*, and the hypotenuse *c*.  I can write the relationship as *a*2 + *b*2 = *c*2.” | Represents flexibly; connects triples and generalises patterns  “I know that the set of numbers  5, 12, 13 represents a Pythagorean triple because I can visualize a right triangle with those side lengths. I also know that 52 + 122 = 132 because both sides of the equation have a value of 169.  To generate other triples, I can multiply each number by the same factor to get another triple. 5 × 2 = 10  12 × 2 = 24  13 × 2 = 26  10, 24, 26 is also a Pythagorean triple.” |
| **Observations/Documentation** | | | |
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