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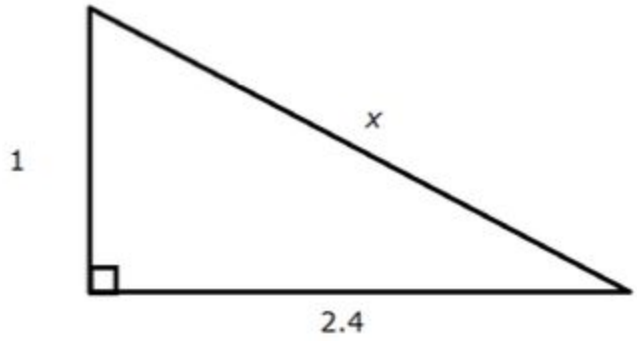
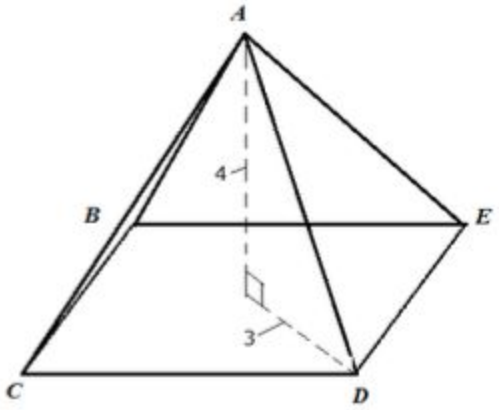
GEOMETRY: PYTHAGOREAN THEOREM A

1	**Example Stem 1:** A right triangle is shown.  Enter the value of *x*.	2.6
2	**Example Stem 2:** A right square pyramid is shown. The height of the pyramid is 4 units. The distance from the center of the base of the pyramid to vertex D is 3 units, as shown.  Enter the length of segment *AD*, in units.	5

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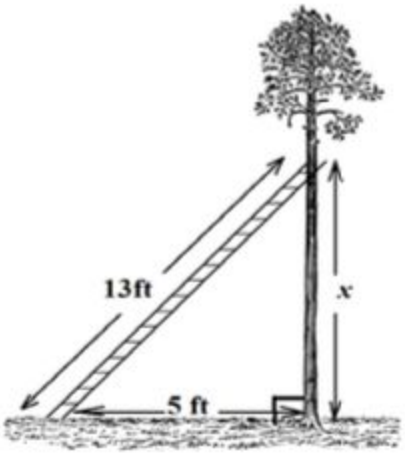
3	**Example Stem 3:** A 13-foot ladder is leaning on a tree. The bottom of the ladder is on the ground at a distance of 5 feet from the base of the tree. The base of the tree and the ground form a right angle as shown.  Enter the distance between the ground and the top of the ladder, x, in feet.	12
4	**Example Stem:** The table shows the side lengths for some triangles. Determine whether the side lengths define a right triangle. Select Yes if it is a right triangle. Select No if it cannot be a right triangle. **Triangle Side Lengths** / **Yes** / **No** 4 cm, 5 cm, 8 cm / / 8 ft, 10 ft, 16 ft / / 21 in, 28 in, 35 in / /	N N Y

SBAC MATH & ANSWERS Geometry: Pythagorean Theorem Practice A

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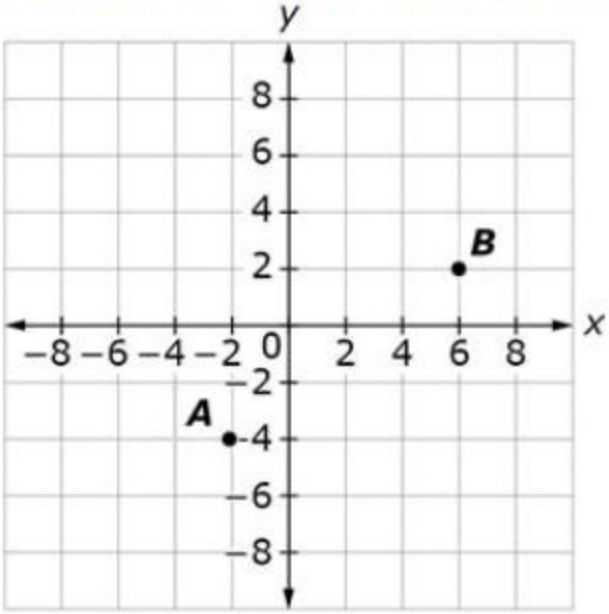
5	**Example Stem 1:** A coordinate plane is shown with labeled points.  What is the distance between point *A* and point *B* on the coordinate plane? A. 5 B. 6 C. 10 D. 14	C
6	**Example Stem 2:** What is the distance between points (5, 2) and (−3, −4) on the coordinate plane? A. 5 B. 6 C. 10 D. 14	C

SBAC Math 8 ANSWERS Geometry: Pythagorean Theorem Practice A

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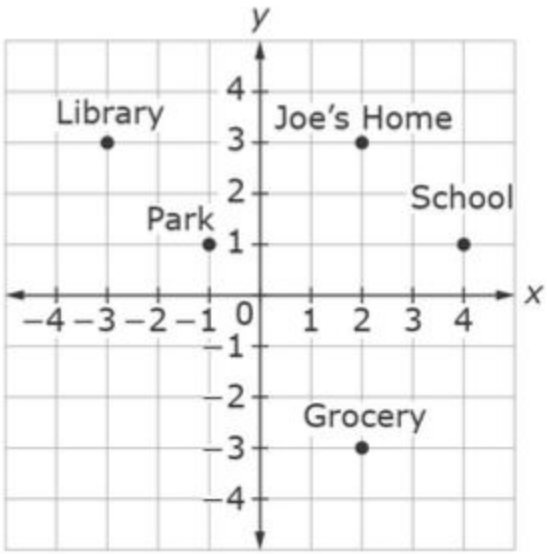
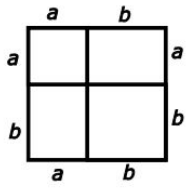
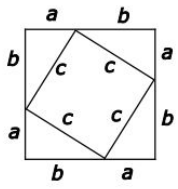
7	**Example Stem:** The points show different locations in Joe's town. Each unit represents 1 mile. **Places in Joe's Town**  What is the distance, in miles, between Joe's Home and the Park? Round your answer to the nearest tenth.	3.6
8 Claim 3	**Example Item 3F.1c (Grade 8)** Primary Target 3F (Content Domain G), Secondary Target 1H (CCSS 8.G.B), Tertiary Target 3B The Pythagorean Theorem states that if a right triangle has legs of length a and b and hypotenuse of length c, then $a^2 + b^2 = c^2$. Figures 1 and 2 represent the key ideas in a proof of the Pythagorean Theorem.  **Figure 1**  **Figure 2** Create an outline a proof for the Pythagorean Theorem based on Figures 1 and 2, by dragging the seven statements shown into a logical sequence. A right triangle has legs of length a and b and hypotenuse of length c. 1. 2. 3. 4. 5. 6. 7. Thus, $a^2 + b^2 = c^2$ Subdivide the large square in Figure 1 into a square with side-length a, a square with side-length b, and two rectangles with side-lengths a and b. Subdivide the large square in Figure 2 into four right triangles with legs a and b and a square with side-length c. The total area of the large square in Figure 1 is $a^2 + b^2 + ab + ab$. The total area of the large square in Figure 2 is $c^2 + 4(\frac{1}{2}ab)$. Start with two large squares with sides of length $a + b$. $a^2 + b^2 + ab + ab = c^2 + 4(\frac{1}{2}ab)$ The two large squares have the same area because they are congruent.	Proof

Test Writers Guidelines Zip File
Geometry H

G: Pythagorean Theorem A

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9 CLAIM 2	**Example Item 2A.4a (Grade 8):** Primary Target 2A (Content Domain G), Secondary Target 1H (CCSS 8.G.B), Tertiary Target 2D Two sides of a right triangle have lengths $\sqrt{10}$ centimeters and $\sqrt{6}$ centimeters. There are two possible lengths for the third side. Enter the **longest** possible side length, in centimeters, for the third side of this triangle.	4

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EXPRESSIONS & EQUATIONS:EXPONENTS

1	**Example Stem:** Select **all** expressions equivalent to $(4^5 \bullet 4^{-3})^{-2}$. A. $\frac{1}{256}$ B. 256 C. $4^{-10} \bullet 4^6$ D. $4^3 \bullet 4^{-5}$	A and C
2	**Example Stem:** Enter the value of n that makes the equation $4^5 \bullet 4^n = 4^{15}$ true.	10
3	**Example Stem 1:** Select **all** possible values for x that solve the equation $x^2 = 200$. A. $10\sqrt{20}$ B. $100\sqrt{2}$ C. $10\sqrt{2}$ D. $\sqrt{200}$	C and D

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4	**Example Stem 2:** Select **all** possible values for x in the equation $x^2 = 200$. A. $10\sqrt{2}$ B. $10\sqrt{20}$ C. $20\sqrt{10}$ D. $-10\sqrt{2}$ E. $-10\sqrt{20}$ F. $-20\sqrt{10}$	A and D
5	**Example Stem:** Select **all** possible values for x in the equation, $x^3 = 250$. A. $5\sqrt[3]{2}$ B. $\sqrt[3]{250}$ C. $5\sqrt[3]{10}$ D. $25\sqrt[3]{10}$	A and B
6	**Example Stem:** How many times larger than 2×10^3 is 6×10^6? A. 3×10^2 B. 3×10^3 C. 6×10^6 D. 12×10^9	B
7	**Example Stem 1:** Approximately 7.5×10^5 gallons of water flow over a waterfall each second. There are 8.6×10^4 seconds in 1 day. Enter the approximate number of gallons of water that flow over the waterfall in 1 day. A. 6.45×10^{21} B. 6.45×10^{20} C. 6.45×10^{10} D. 6.45×10^9	C

SBAC MATH & ANSWERS Expressions & Equations: Exponents Practice A

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8 CLAIM 2	**Example Stem 2:** Which value is closest to $(6 \times 10^6) + (2 \times 10^4)$? A. 8.0×10^{10} B. 8.0×10^6 C. 6.0×10^{10} D. 6.0×10^6	D
9 CLAIM 3	**Example Item 3D.2b (Grade 8)** Primary Target 3D (Content Domain EE), Secondary Target 1B (CCSS 8.EE.A), Tertiary Target 3C Maggie claims that when you raise a whole number to a power, the result is always a greater number. That is, $s^n > s$. For example: $4^3 > 4$ $5^4 > 5$ $10^9 > 10$ Maggie's claim is **not** true for all values of n and s. For what values of n and s is Maggie's claim true? Complete the inequalities. $s >$ [ ] $n >$ [ ]	($\frac{a}{b} > 1$ and $\frac{c}{d} < 1$)

Test Writers Guidelines Zip File
Expressions and Equations B

EE: Exponents A

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EXPRESSIONS & EQUATIONS: EXPONENTS B

1	**1808**  Approximately 7.5×10^5 gallons of water flow over a waterfall each second. There are 8.6×10^4 seconds in 1 day. Select the approximate number of gallons of water that flow over the waterfall in 1 day. (A) 6.45×10^{21} (B) 6.45×10^{20} (C) 6.45×10^{10} (D) 6.45×10^{9}	C