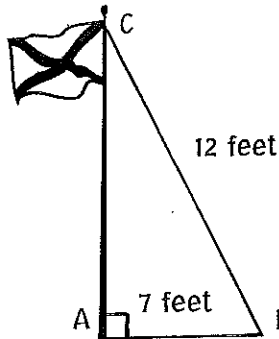


Using the Pythagorean Theorem

Square Roots

The Pythagorean Theorem can be used to solve many different types of real world problems. The first step to take when solving these problems is to draw a picture and label each of the sides of the triangle from the given information.

Looking at the picture below, find the distance from point A to point C.



$$a^2 + b^2 = c^2$$

$$7^2 + b^2 = 12^2$$

$$49 + b^2 = 144$$

$$49 - 49 + b^2 = 144 - 49$$

$$\sqrt{b^2} = \sqrt{95}$$

$$b = 9.7$$

Use the Pythagorean Theorem.

Plug in the given values.

Square the numbers.

Subtract 49 from both sides.

Take the square root of both sides.

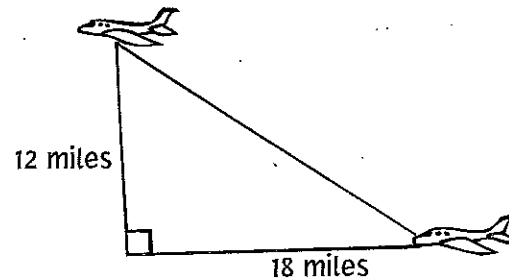
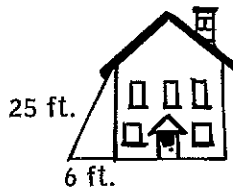
Solve for b . Round to the nearest tenth.

Thus, the distance from A to C is 9.7 feet.

Note: When a perfect square is not given, use a calculator and round to the nearest tenth.

Write an equation that can be used to answer each question. Then solve the equation, rounding answers to the nearest tenth.

1. What is the distance from the ground to the place where the ladder touches the house?
2. How many miles apart are the two planes?



Solve each problem by first drawing a picture. Round answers to the nearest tenth.

3. Find the length of the diagonal of a square whose sides are each 8 inches.
4. John and Bob are 15 feet apart on the ground. If John is flying a kite and lets out 25 feet of string, and the kite is directly above Bob, how high is the kite?
5. On a regulation baseball field, there are 90 feet between the bases. How many feet are there from home plate to second base?
6. The width of a TV is 22 inches, and its diagonal is 32 inches. What is the height of the TV?



Why Didn't Krok Like to Go Sailing With the Baseball Uniform Designer?



Simplify each expression below and find your answer in the corresponding answer column. Write the letter of the exercise in the box that contains the number of the answer.

(L) $\sqrt{8}$	(18) $7\sqrt{2}$	(S) $5\sqrt{18}$	(19) $6\sqrt{7}$
(I) $\sqrt{45}$	(14) $5\sqrt{5}$	(U) $3\sqrt{28}$	(13) $24\sqrt{3}$
(A) $\sqrt{50}$	(12) $2\sqrt{2}$	(A) $2\sqrt{1000}$	(3) $24\sqrt{2}$
(T) $\sqrt{12}$	(4) $5\sqrt{2}$	(P) $\sqrt{1,000,000}$	(9) $15\sqrt{2}$
(O) $\sqrt{98}$	(28) $4\sqrt{3}$	(E) $3\sqrt{128}$	(5) $16\sqrt{5}$
(S) $\sqrt{48}$	(20) $2\sqrt{3}$	(K) $8\sqrt{27}$	(23) 1000
(E) $\sqrt{125}$	(25) $3\sqrt{5}$	(L) $4\sqrt{80}$	(16) $20\sqrt{10}$
(A) $\sqrt{20}$	(8) $3\sqrt{7}$	(H) $-3\sqrt{54}$	(10) $-8\sqrt{6}$
(S) $\sqrt{72}$	(1) $6\sqrt{2}$	(A) $-7\sqrt{40}$	(21) $30\sqrt{3}$
(Y) $\sqrt{63}$	(7) $10\sqrt{2}$	(B) $-8\sqrt{121}$	(11) $-14\sqrt{10}$
(E) $\sqrt{144}$	(6) $4\sqrt{2}$	(S) $2\sqrt{500}$	(24) $20\sqrt{5}$
(W) $\sqrt{32}$	(22) $2\sqrt{5}$	(T) $-4\sqrt{24}$	(26) $15\sqrt{7}$
(D) $\sqrt{75}$	(27) 12	(Z) $3\sqrt{175}$	(2) $-9\sqrt{6}$
(A) $\sqrt{200}$	(15) $5\sqrt{3}$	(C) $5\sqrt{108}$	(17) -88

OBJECTIVE 3-d: To simplify square roots of numbers that have perfect square factors.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
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