

Name: \_\_\_\_\_

Due Date: \_\_\_\_\_

Teacher: \_\_\_\_\_

Parent Sign: \_\_\_\_\_

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- (Garfield) Let  $a = 3$  and  $b = 4$ . Compute  $(a + b)\frac{2}{2}$ .
- (Garfield) With  $a = 3$ ,  $b = 4$ , and  $ab = 12$ , compute  $c$  from the Garfield area relation  $((a+b)^2)/2 = ab + (c^2)/2$ .
- (Garfield) Let  $a = 6$  and  $b = 8$ . Compute  $(a + b)\frac{2}{2}$ .
- (Garfield) Using  $a = 6$  and  $b = 8$ , find  $c$  from the Garfield relation.
- (Garfield) Let  $a = 5$  and  $b = 12$ . Compute  $c$  using  $a^2 + b^2 = c^2$  (Garfield conclusion).
- (Garfield) Let  $a = 8$  and  $b = 15$ . Find  $c$ .
- (Garfield) Let  $a = 9$  and  $b = 12$ . Find  $c$ .
- (Garfield) Let  $a = 1$  and  $b = 2$ . Find  $c$  (exact form).
- (Garfield) If  $a = 4$  and  $b = 3$ , compute  $(a + b)\frac{2}{2}$  and then  $c$ .
- (Garfield) For  $a = 7$  and  $b = 24$ , find  $c$ .
- (Bhaskara) Using Bhaskara's square method, let  $a = 3$  and  $b = 4$ . Compute  $c$ .
- (Bhaskara) Let  $a = 5$  and  $b = 12$ . Compute  $c$ .
- (Bhaskara) Let  $a = 8$  and  $b = 15$ . Compute  $c$ .
- (Bhaskara) Let  $a = 7$  and  $b = 24$ . Compute  $c$ .
- (Bhaskara) Let  $a = 20$  and  $b = 21$ . Compute  $c$ .
- (Bhaskara) Let  $a = 9$  and  $b = 40$ . Compute  $c$ .
- (Bhaskara) Let  $a = 6$  and  $b = 8$ . Compute  $c$ .
- (Bhaskara) Let  $a = 2$  and  $b = 3$ . Compute  $c$  (exact form).
- (Bhaskara) Let  $a = 10$  and  $b = 10$ . Compute  $c$  (simplify).
- (Bhaskara) Let  $a = 12$  and  $b = 35$ . Compute  $c$ .
- (Similarity: hypotenuse segments) Right triangle with legs  $a = 5$ ,  $b = 12$ ,  $c = 13$ . Compute the hypotenuse segments  $d$  and  $e$  where  $d$  is adjacent to  $a$  and  $e$  is adjacent to  $b$  ( $d = a\frac{2}{c}$ ,  $e = b\frac{2}{c}$ ).
- (Similarity) For  $a = 9$ ,  $b = 12$ ,  $c = 15$ , compute  $d$  and  $e$ .
- (Similarity) Given  $c = 10$  and  $d = 4$  (segment of hypotenuse), compute the leg  $a$  where  $a^2 = c \cdot d$ .
- (Similarity) Given  $a = 6$  and  $c = 10$ , compute  $d$  ( $d = a\frac{2}{c}$ ).
- (Similarity: altitude) For  $a = 3$ ,  $b = 4$ ,  $c = 5$ , compute the altitude  $h$  from the right angle to the hypotenuse ( $h = \frac{ab}{c}$ ).
- (Similarity: altitude) For  $a = 8$ ,  $b = 15$ ,  $c = 17$ , compute the altitude  $h$ .
- (Similarity) Given  $c = 25$  and  $d = 9$ , find  $a$ .
- (Similarity) Given  $b = 20$  and  $c = 29$ , compute  $e = b\frac{2}{c}$  (segment of hypotenuse).
- (Similarity) For  $a = 7$ ,  $b = 24$  (so  $c = 25$ ), compute the altitude  $h$ .
- (Similarity) Given  $c = 13$  and  $a = 5$ , compute  $d$  and  $e$  (exact values and decimal approximations).
- (Similarity) For  $a = 9$ ,  $b = 12$  ( $c = 15$ ), compute altitude  $h$  ( $\frac{ab}{c}$ ).



## Math Worksheet for 8th Grade Pythagorean theorem and distance between points

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32. (Similarity) For  $a = 4$ ,  $b = 3$  ( $c = 5$ ), compute  $d$ ,  $e$ , and  $h$ .
33. (Similarity) Given  $c = 17$  and  $e = 8$ , compute  $b = \sqrt{c \cdot e}$ .
34. (Similarity) Given  $a = 12$  and  $c = 13$ , compute  $d = a \frac{2}{c}$  (exact and decimal).
35. (Similarity) Given  $a = 2$  and  $b = 11$ , compute  $c$  and then  $d = a \frac{2}{c}$  (decimal).
36. (Distance) Find the distance between  $(0, 0)$  and  $(3, 4)$ .
37. (Distance) Find the distance between  $(1, 2)$  and  $(4, 6)$ .
38. (Distance) Find the distance between  $(-1, -1)$  and  $(2, 3)$ .
39. (Distance) Find the distance between  $(2, 5)$  and  $(8, 1)$ .
40. (Distance) Find the distance between  $(3, -2)$  and  $(-1, 3)$ .
41. (Distance) Find the distance between  $A(2, 3)$  and  $B(2, 9)$ .
42. ( *$\frac{\text{Distance}}{\text{Pythagorean}}$* ) Points  $(1, 1)$ ,  $(1, 6)$ , and  $(7, 1)$  are vertices of a right triangle. Compute the lengths of the two legs and the hypotenuse.
43. (Distance) Find the distance between  $(-3, 4)$  and  $(4, -3)$ .
44. (Distance) Find the distance between  $(0, 5)$  and  $(12, 5)$ .
45. (Distance) Find all points on the  $x$ -axis that are distance 13 from  $(5, 12)$ .
46. (Distance) Find  $x$  so that the point  $(x, 0)$  is 13 units from  $(0, 12)$ .
47. (Pythagorean application) A right triangle has legs 8 and  $x$  and hypotenuse 10. Find  $x$ .
48. (Distance) Find the distance between  $(1, 4)$  and  $(7, 4)$ .
49. (Pythagorean application) A ladder 13 ft long leans against a wall reaching 12 ft high. How far is the base from the wall?
50. (Pythagorean application) A square has diagonal length 10. Find the side length of the square.