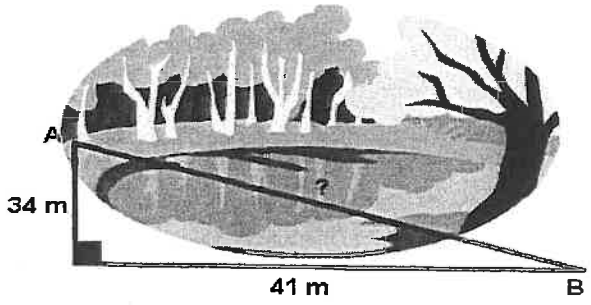
Name: Key

Pythagorean Theorem
Word Problems Worksheet

Be sure to show your work. Draw your own pictures, or add to the ones already there.

1.



To get from point A to point B you must avoid walking through a pond. To avoid the pond, you must walk 34 meters south and 41 meters east. To the *nearest meter*, how many meters would be saved if it were possible to walk through the pond?

$34^2+41^2=c^2$

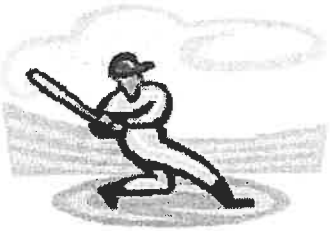
$1156+1681=c^2$

$\sqrt{2837}=\sqrt{c^2}$

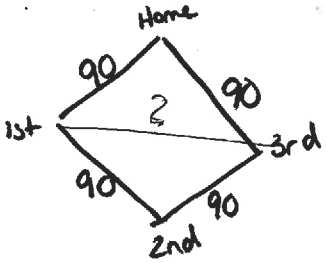
53 meters

$c\approx 53.26$

2.



A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the *nearest tenth* of a foot, between first base and third base?



$90^2+90^2=c^2$

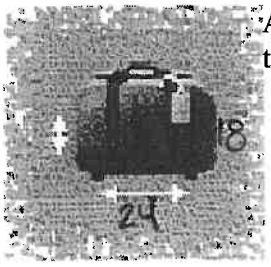
$8100+8100=c^2$

$\sqrt{16200}=\sqrt{c^2}$

127.3 feet

$c\approx 127.28$

3.



A suitcase measures 24 inches long and 18 inches high. What is the diagonal length of the suitcase to the *nearest tenth* of a foot?

$24^2+18^2=c^2$

$576+324=c^2$

$\sqrt{900}=\sqrt{c^2}$

$30=c$
inches

$30\div 12=$ 2.5 feet

4.

In a computer catalog, a computer monitor is listed as being 19 inches. This distance is the diagonal distance across the screen. If the screen measures 10 inches in height, what is the actual width of the screen to the *nearest inch*?

$10^2+b^2=19^2$

$100+b^2=361$

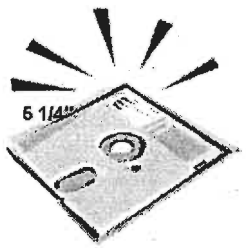
$-100 \quad -100$

$\sqrt{b^2}=\sqrt{261}$

$b \approx 16.16$

16 inches

5.



The older floppy diskettes measured 5 and 1/4 inches on each side. What was the diagonal length of the diskette to the *nearest tenth* of an inch?

$5.25^2+5.25^2=c^2$

$27.5625+27.5625=c^2$

$\sqrt{55.125}=\sqrt{c^2}$

$7.4 \approx c$

7.4 inches

6.

Ms. Spires tells you that a right triangle has a hypotenuse of 13 and a leg of 5. She asks you to find the other leg of the triangle. What is your answer?

$a^2+5^2=13^2$

$a^2+25=169$

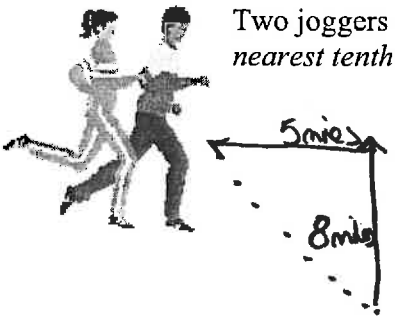
$-25 \quad -25$

$\sqrt{a^2}=\sqrt{144}$

$a=12$

12

7.



Two joggers run 8 miles north and then 5 miles west. What is the shortest distance, to the *nearest tenth* of a mile, they must travel to return to their starting point?

13miles vs 9.4 miles

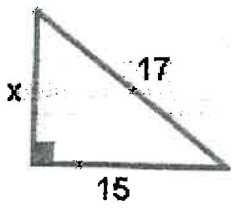
$5^2+8^2=c^2$

$25+64=c^2$

$\sqrt{89}=\sqrt{c^2}$

$9.4 \approx c$

8. Find x



$x^2+15^2=17^2$

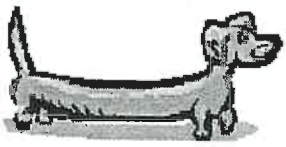
$x^2+225=289$

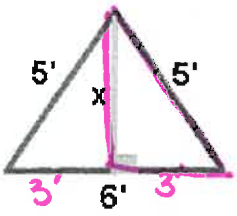
$-225 \quad -225$

$\sqrt{x^2}=\sqrt{64}$

$x=8$

9. Oscar's dog house is shaped like a tent. The slanted sides are both 5 feet long and the bottom of the house is 6 feet across. What is the height of his dog house, in feet, at its tallest point?





$x^2+3^2=5^2$

$x^2+9=25$

$-9 \quad -9$

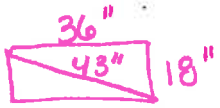
$\sqrt{x^2}=\sqrt{16}$

$x=4$

4 feet

10.

Seth made a small rectangular table for his workroom. The sides of the table are 36" and 18". If the diagonal of the table measures 43", is the table square? A table which is "square" has right angles at the corners.



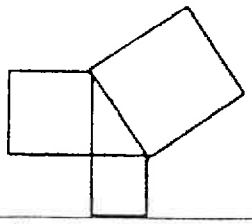
Does

$18^2+36^2=43^2$

$324+1296=1849$

$1620 \neq 1849$

NO

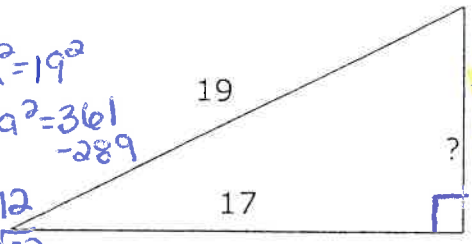


Worksheet 1 - Name:

(Answers on 2nd page of PDF)
The theorem states that the square of the hypotenuse is the sum of the squares of the legs. Always understand that the Pythagorean Theorem relates the areas of squares on the sides of the right triangle.

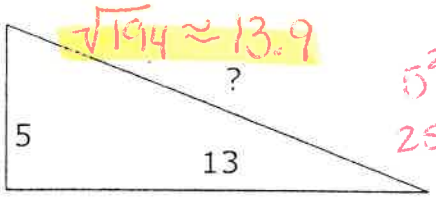
Use the Pythagorean Theorem to find the missing unit

1.



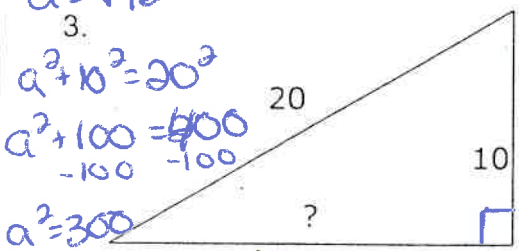
$17^2+a^2=19^2$
$289+a^2=361$
$-289 \quad -289$
$a^2=72$
$\sqrt{a^2}=\sqrt{72}$
$a=\sqrt{72}$
$\sqrt{72} \approx 8.5$

2.



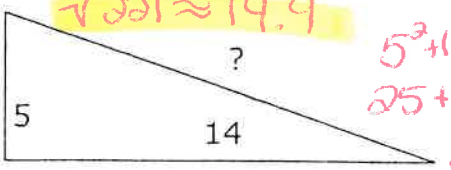
$\sqrt{194} \approx 13.9$
$5^2+13^2=c^2$
$25+169=c^2$
$194=c^2$
$\sqrt{194}=c$

3.



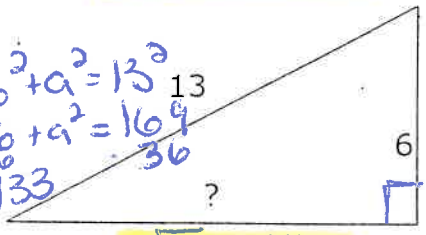
$a^2+10^2=20^2$
$a^2+100=400$
$-100 \quad -100$
$a^2=300$
$\sqrt{300} \approx 17.3$

4.



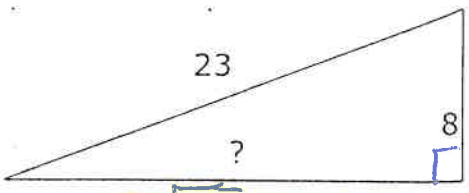
$\sqrt{221} \approx 14.9$
$5^2+14^2=c^2$
$25+196=c^2$
$221=c^2$

5.



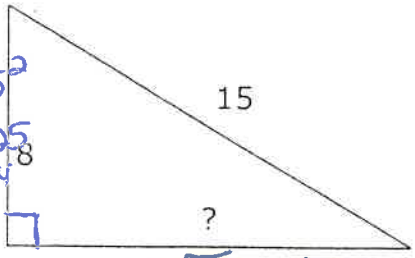
$6^2+a^2=13^2$
$36+a^2=169$
$-36 \quad -36$
$a^2=133$
$\sqrt{133} \approx 11.5$

6.



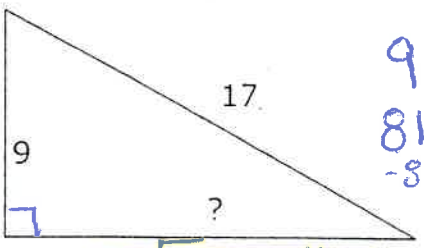
$8^2+a^2=23^2$
$64+a^2=529$
$-64 \quad -64$
$a^2=465$
$\sqrt{465} \approx 21.6$

7.



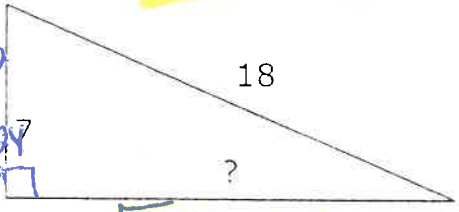
$8^2+a^2=15^2$
$64+a^2=225$
$-64 \quad -64$
$a^2=161$
$\sqrt{161} \approx 12.7$

8.



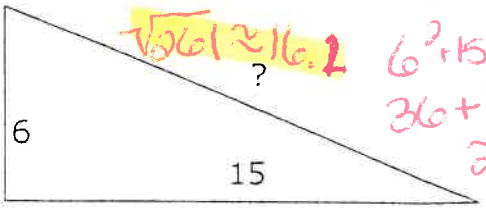
$9^2+a^2=17^2$
$81+a^2=289$
$-81 \quad -81$
$a^2=208$
$\sqrt{208} \approx 14.4$

9.



$7^2+a^2=18^2$
$49+a^2=324$
$-49 \quad -49$
$a^2=275$
$\sqrt{275} \approx 16.6$

10.



$\sqrt{261} \approx 16.2$
$6^2+15^2=c^2$
$36+225=c^2$
$261=c^2$

Kuta Software - Infinite Geometry

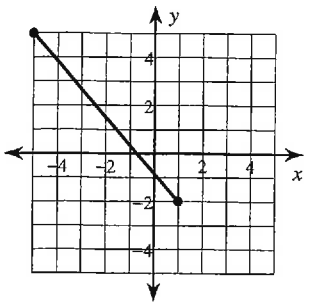
Name Key

The Distance Formula

Date_____ Period____

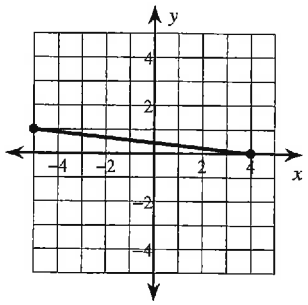
Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

1)



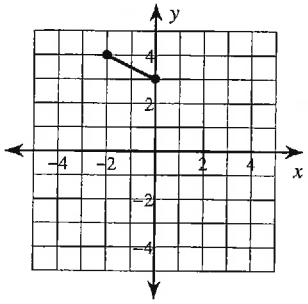
9.2

2)



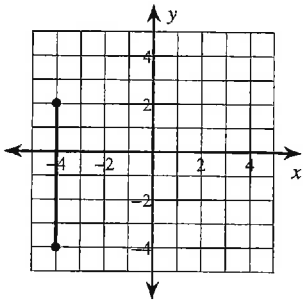
9.1

3)



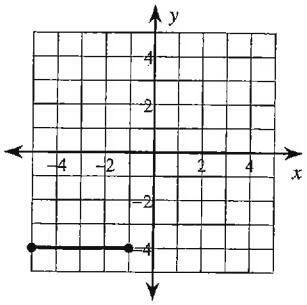
2.2

4)



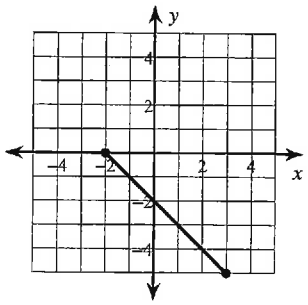
6

5)



4

6)



7.1

7) (–2, 3), (–7, –7)

11.2

8) (2, –9), (–1, 4)

13.3

9) (5, 9), (–7, –7)

20

10) (8, 5), (–1, 3)

9.2

11) (–10, –7), (–8, 1)

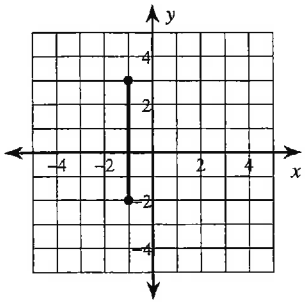
8.2

12) (–6, –10), (–2, –10)

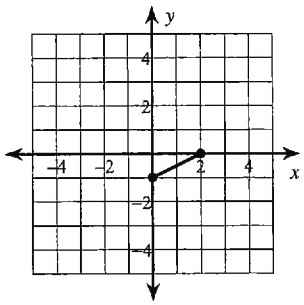
4

Find the distance between each pair of points.

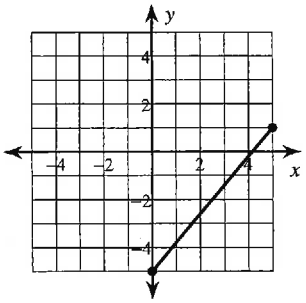
13) 5



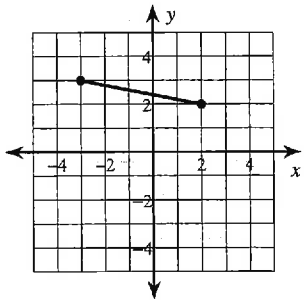
14) $\sqrt{5}$



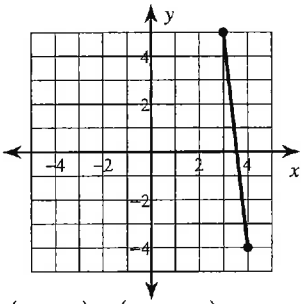
15) $\sqrt{61}$



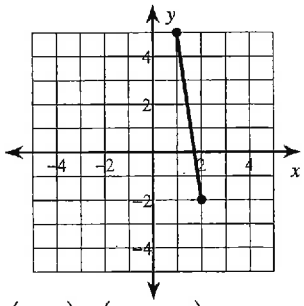
16) $\sqrt{26}$



17) $\sqrt{82}$



18) $5\sqrt{2}$



19) (0, –2), (–5, –1)

$\sqrt{26}$

20) (6, 4), (–5, –1)

$\sqrt{146}$

21) (3, 8), (9, 10)

$2\sqrt{10}$

22) (10, 1), (9, –4)

$\sqrt{26}$

23) (–8, 10), (–6, 7)

$\sqrt{13}$

24) (–5, 6), (8, –4)

$\sqrt{269}$

Critical thinking questions:

25) Name a point that is $\sqrt{2}$ away from (–1, 5).

(0, 6), (0, 4), (–2, 6), or (–2, 4)

26) Name a point that is between 50 and 60 units away from (7, –2) and state the distance between the two points.

Many answers. Ex: (60, –2); 53 units