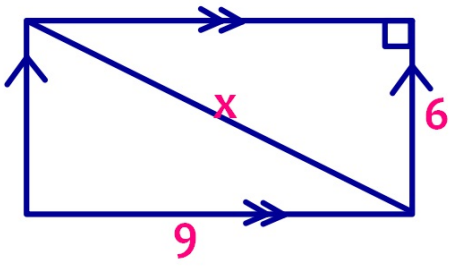
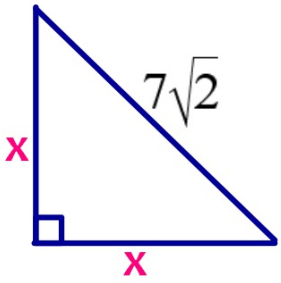
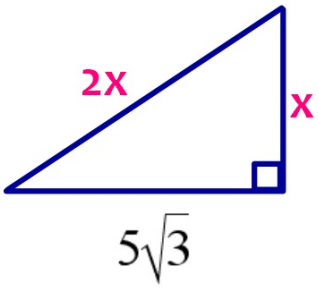
WARMUP

Solve for x



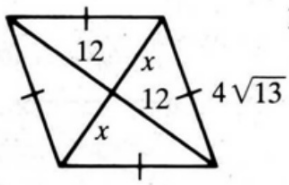




SECTION 8.2:
THE PYTHAGOREAN THEOREM

Standards:

13.



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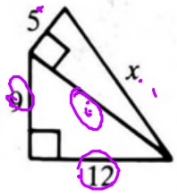

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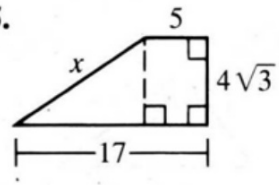
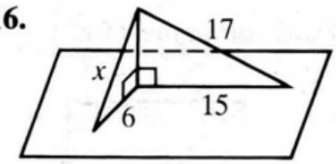


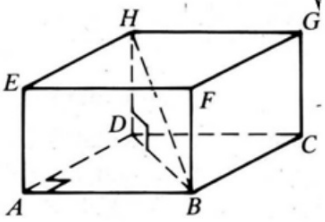
16.



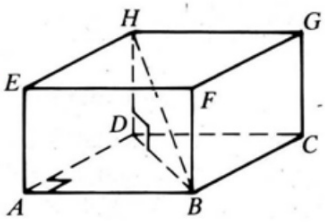
17) Find the length of the diagonals of a square with perimeter 56.	18) The diagonals of a rhombus have lengths 18 and 24. Find the perimeter.	19) A rectangle has diagonals of 5 cm and its width is $\sqrt{3}$ cm. Find the length.

20) The perimeter of a rhombus is 100 cm, and one diagonal is 48 cm long. Find the length of the other diagonal.

21) If $AB = 8$ and $AD = 6$, then $DB =$ 10. And if $HD = 5$, then $HB =$ $5\sqrt{5}$.



22) If $AB = 12$ and $AD = 8$, then $DB =$ _____. And if $HD = 9$, then $HB =$ _____.



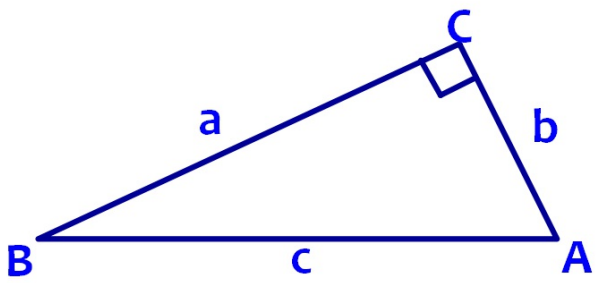
SECTION 8.3:
THE CONVERSE OF THE PYTHAGOREAN THEOREM

Standards:

THEOREM

If the square of one side of a triangle is = to the sum of the squares of the other 2 sides, then the Δ is a right Δ.

If $a^2 + b^2 = c^2$, then ΔABC is a right Δ.



PYTHAGOREAN TRIPLES

A Δ with sides of 3, 4, and 5 is a right Δ since $3^2 + 4^2 = 5^2$. Any multiples are also right Δs. They are called Pythagorean Triples.

3:4:5

3, 4, 5

6, 8, 10

9, 12, 15

12, 16, 20

15, 20, 25

5, 12, 13

10, 24, 26

8, 15, 17

7, 24, 25

Use these to save time!

EXAMPLE 1

If a triangle is formed with sides having the lengths given, is it a right triangle?

a) 4, 7, 9

NO

b) 20, 21, 29

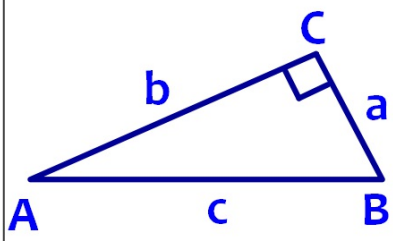
YES

c) $\sqrt{2}, 2, \sqrt{5}$

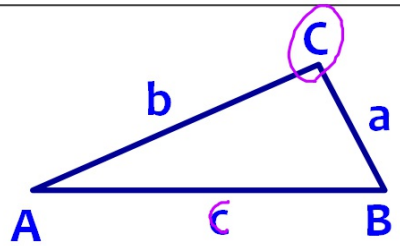
$2+4 \neq 5$

NO

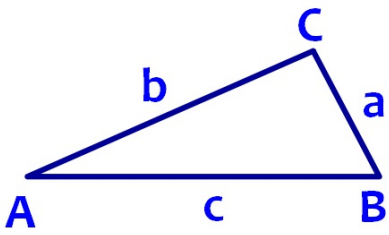
THEOREMS



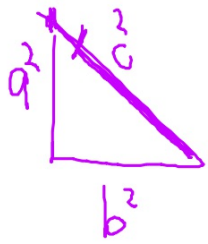
If $c^2 = a^2 + b^2$ then ΔABC is a rt Δ



If $c^2 < a^2 + b^2$ then ΔABC is acute



If $c^2 > a^2 + b^2$ then ΔABC is obtuse



EXAMPLE 2

If a triangle is formed with the given lengths, is it acute, right, or obtuse?

a) 1, 1, $\sqrt{5}$

$1+1 < 5$

Not a $\triangle$ OBTUSE

b) 8, 9, 12

$64 + 81 > 144$

acute

c) $\sqrt{5}, \sqrt{5}, \sqrt{10}$

d) $5, 5, 5\sqrt{3}$

HOMEWORK

Assignment #8.3

- Pages 292-293 #13-18 (picture for every problem), 22-27, 29, 30
- Page 296 CE #1-6
- Page 297 WE #1-6

FRIDAY FEB 3rd - PROOF QUIZ

TUESDAY FEB 7th - QUIZ 8.1-8.4