

## Math 8

Our Goal: To learn to use the Pythagorean Theorem

Warm Up: engage<sup>ny</sup> question

Today's participation measures

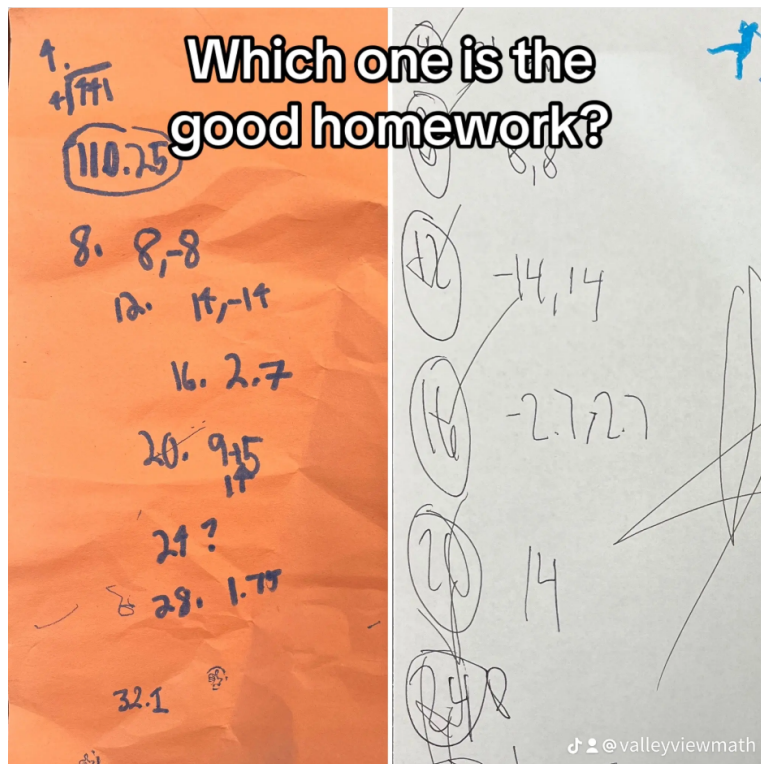
- 7.3 Exercises, p.304-305: 2-14 (evens)
- **iready, if needed**

7 QUESTIONS

Previous participation measures

7.2 Exercises, p.298: 3-21 (multiples of 3)

?



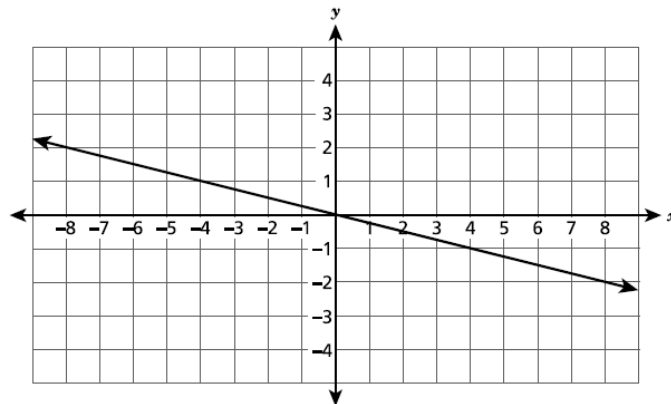
1)  $\sqrt{6,889}$

2)  $\sqrt[3]{24,389}$

3)  $\sqrt[3]{-373,248}$

4)  $2\sqrt{1,369}$

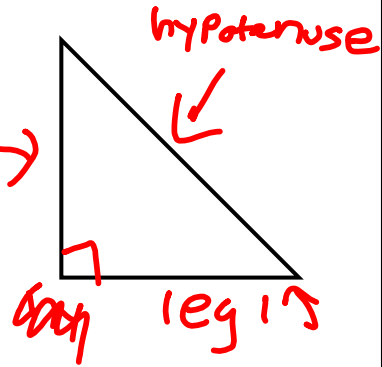
Which equation represents the line shown on the coordinate plane below?



- A  $y = 4x$
- B  $y = -4x$
- C  $y = \frac{1}{4}x$
- D  $y = -\frac{1}{4}x$

A right triangle has...

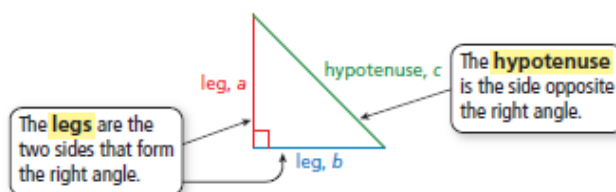
- One right angle
- One longest side
- two legs



## Key Ideas

### Sides of a Right Triangle

The sides of a right triangle have special names.

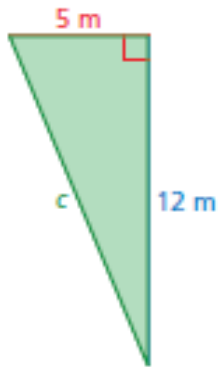


### The Pythagorean Theorem

**Words** In any right triangle, the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

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

Find the length of the hypotenuse of the triangle.



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

$$5^2 + 12^2 = c^2$$

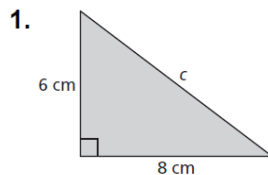
$$25 + 144 = c^2$$

$$169 = c^2$$

$$= 13$$

$$\sqrt{169}$$

Find the missing length of the triangle.

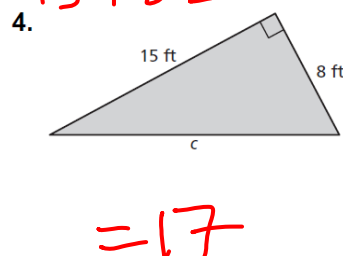
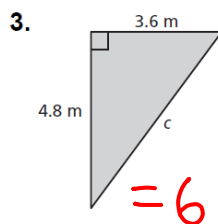
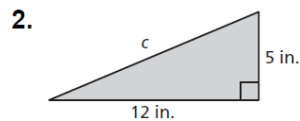


$$= 36 \quad \sqrt{36}$$

$$12.96 + 23.04 = c^2 \quad 289 = c^2 \quad \sqrt{289}$$

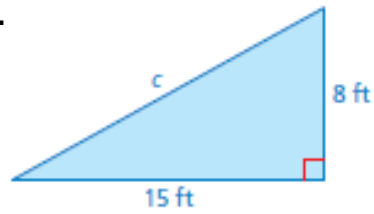
$$3.6^2 + 4.8^2 = c^2 \quad 225 + 64 = c^2$$

$$15^2 + 8^2 = c^2$$

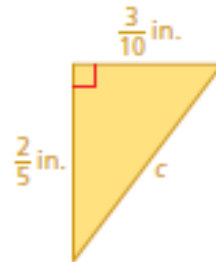


Find the length of the hypotenuse of the triangle.

1.



2.



Find the missing length of the triangle.

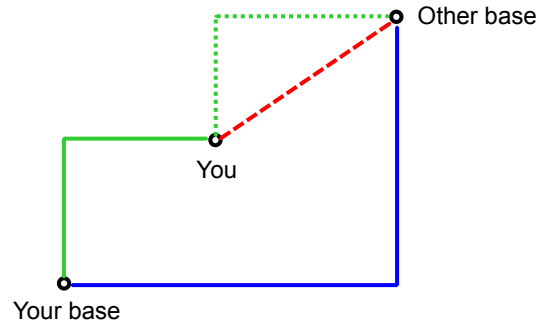
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 2.1^2 &= 2.9^2 \\
 a^2 + 4.41 &= 8.41 \\
 a^2 + 4.41 &= 8.41 \\
 -4.41 &\quad -4.41
 \end{aligned}$$

$$a^2 = 4$$

$$A = 2$$

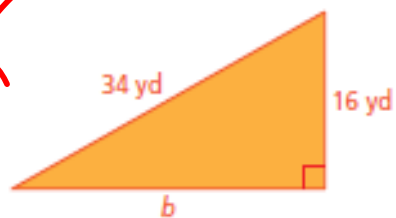


You are playing capture the flag. You are 50 yards north and 20 yards east of your team's base. The other team's base is 80 yards north and 60 yards east of your base. How far are you from the other team's base?

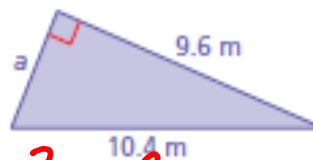


Find the missing length of the triangle.

3.



4.



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 9.6^2 &= 10.4^2 \\
 a^2 + 92.16 &= 108.16 \\
 a^2 &= 16 \\
 A &= 4
 \end{aligned}$$

**Exit Ticket:** Solve for the missing side length.

