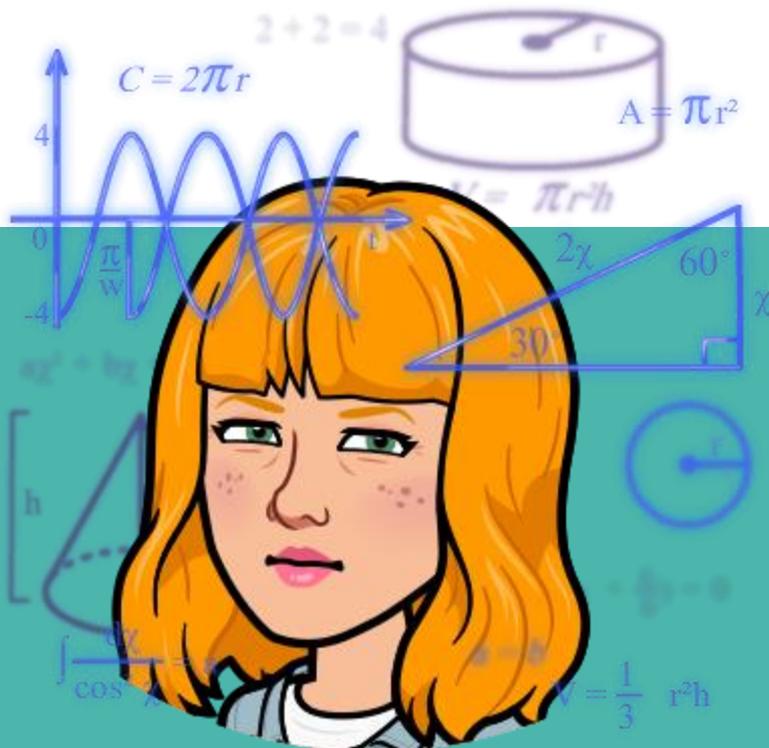


MATH PROFICIENCY TEST PREP



GOOD RESOURCES



Knowledgehook

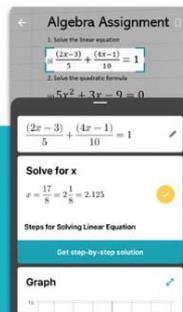


Khan Academy

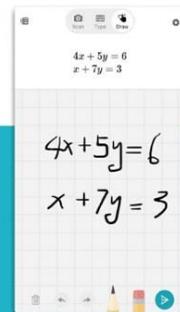
math
Antics®



Microsoft Math



Scan and solve
math problems



Write naturally
as on paper



Get step-by-step
explanations

TIPS

- ❑ Learn how the math **works** – it will build a **deeper** understanding
- ❑ There are many ways to get to an answer – all are valid but due to time restrictions it is important you find the **most efficient** one for you (one size does not fit all)
- ❑ Take your time to read the question carefully, sometimes the **wording is tricky** – it is important you **understand what the question is asking for prior to solving** or you could be solving for the wrong thing.

TIPS

- ❑ Know your **basic formulas**, if you have flip around looking for them it will take up too much of your time.
- ❑ Do the **questions you know first** and then go back – feeling confident in what you are doing is likely to activate prior learning and help you with the ones you were unsure of.
- ❑ If you have to guess do it **strategically** – what makes the **most sense**.

TIPS

- ❑ For pedagogy portion focus on **differentiated instruction** (Learning for All), **types of assessments** (as, for and of), **purpose and use of assessment charts** (Growing Success) and **IEPs** (Learning for All).

STUDENT VOICE

One of the most impactful things I have learned during my journey as a teacher and the opportunities I have had to learn with and from other teachers is the importance of **student voice**.

It is important as a teacher/tutor to “**listen**” to what is **needed** and how it is best **delivered** and **assessed** (but unfortunately that part is not going to happen).

I would like to give you to tell me what that looks like for you.

Content

Some ideas might be

- Surface area & Volume
- Equations / Linear equations
- Ratios & Rates
- Fractions

Learning Strategies

Some ideas might be

- Explicit instruction
- Guided practice
- Group inquiry
- Practice questions and feedback

LINEAR EQUATIONS / SLOPE / Y INTERCEPT

The equation of any **straight line**, called a **linear equation**, can be written as: $y = mx + b$, where m is the **slope** (rate of change – what the pattern is increasing by) of the line and b is the **y-intercept** (zero value, constant).

Example:

Liam is going to the fair and it costs **\$15 to get in** and **\$5 per ride ticket**.

\$15 is the b or y-intercept. Liam will have to pay the \$15 before he can go on any rides.

\$5 is the m or slope (rate of change) this value will change depending on how many rides he goes on.

If Liam spends \$45 at the fair, how many rides did he go on?

Linear equation: $5x + 15 = 45$ - now you can solve for x .

TRY IT ...

Balinda is renting a moped to ride around for the day on her vacation. The moped costs \$30 to rent **plus** an hourly fee of \$5.

What is an **equation** you can write that shows the cost (c), to rent this moped for **any** number of hours (h)?

\$5 per hour + \$30 to rent = cost

$$5x + 30 = c$$

How much would it cost Balinda to rent the moped for 4 hours?

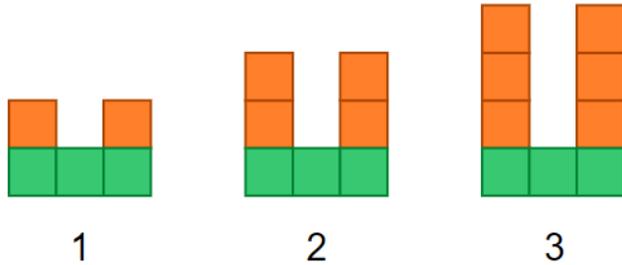
\$5 per hour + \$30 to rent = cost

$$5(4) + 30 = c$$

$$20 + 30 = c$$

$$50 = c$$

WRITING EQUATIONS



Term #	# of cubes
1	5
2	7
3	9
4	11

What **general term** can you write that describes the pattern in terms of the position number n ? (number of cubes in **any term** of the pattern)

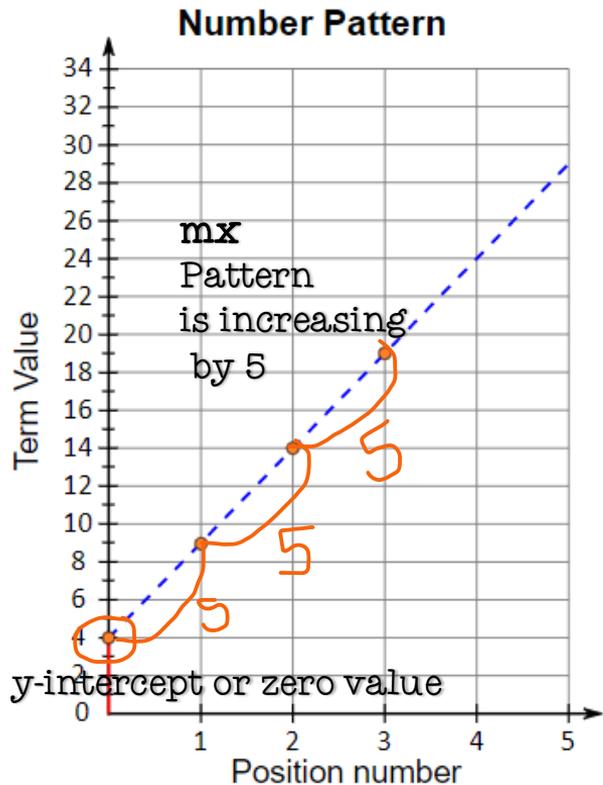
2x is my **slope** – it is what my pattern is **increasing** by

3 is my y -intercept or zero value / constant

It stays the same no matter how many terms are in the pattern

General Term: $2x + 3 =$ number of cubes in that term

WRITING EQUATIONS



What **general term** can you write that describes the pattern in terms of the position number n ? (number in **any term** of the pattern)

4 is my y-intercept or zero value / constant
It stays the same no matter how many terms are in the pattern

5x is my **slope** – it is what my pattern is **increasing** by

General Term: $5x + 4 = n$

WRITING EQUATIONS

x	y
0	1
1	3
2	5
3	7
4	9

What **general term** can you write that describes the pattern in terms of the position number n ? (number in **any term** of the pattern)

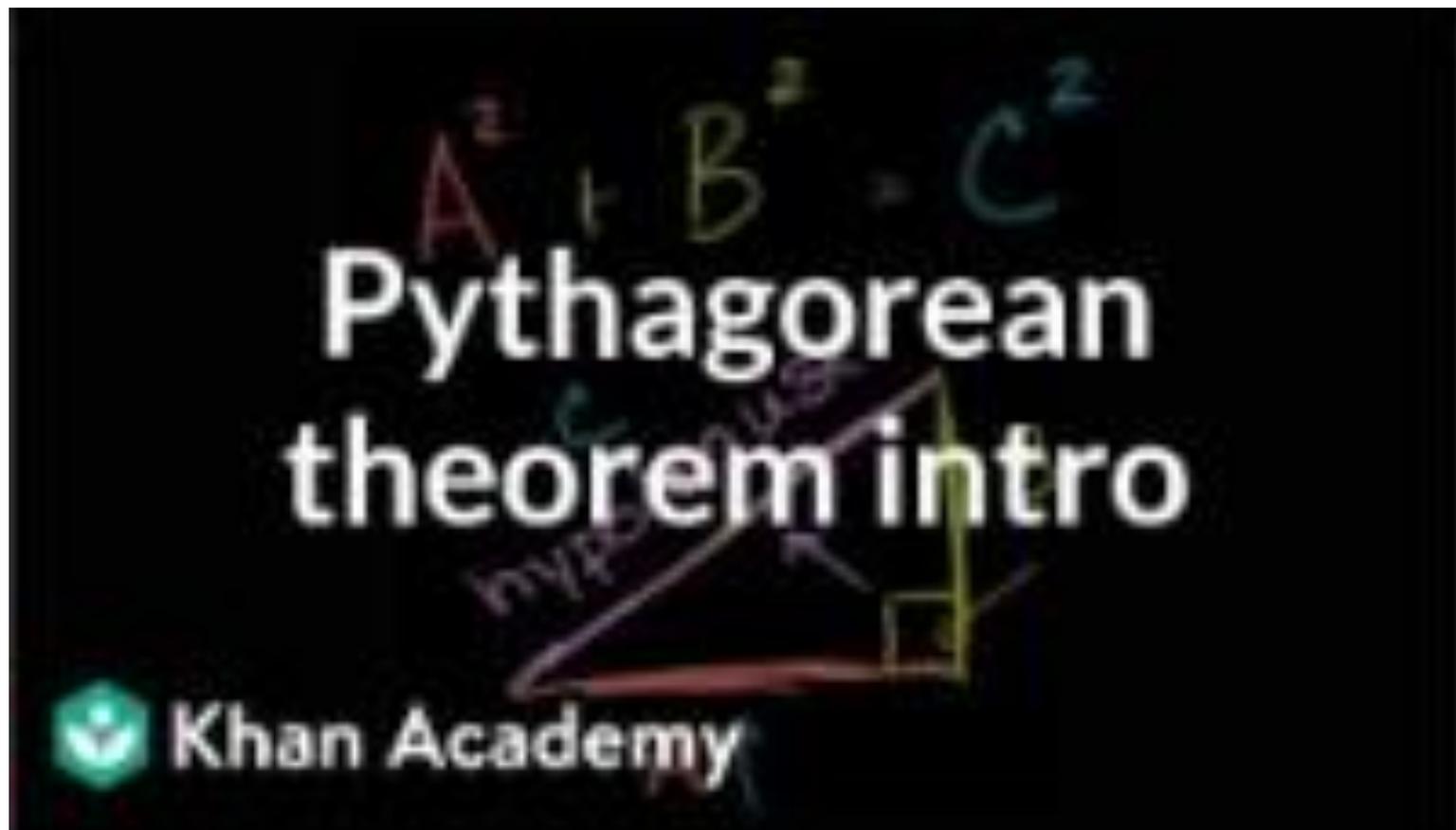
1 is my y-intercept or zero value / constant
It stays the same no matter how many terms are in the pattern

$2x$ is my **slope** – it is what my pattern is **increasing** by

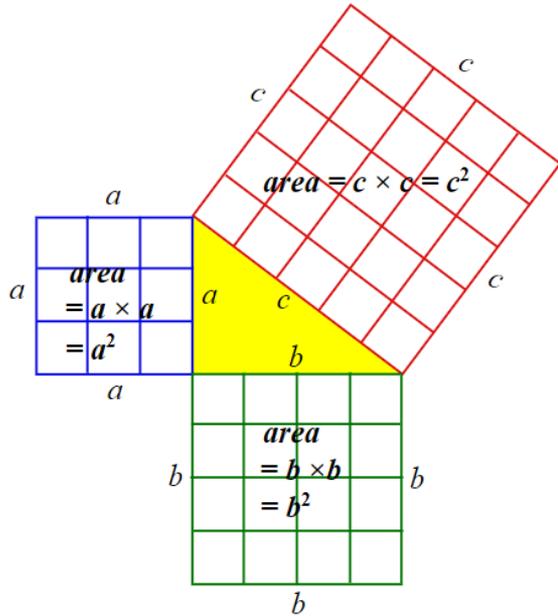
General Term: $2x + 1 =$ value of any term in that pattern

What is the **value** of the **15th term** in the pattern?

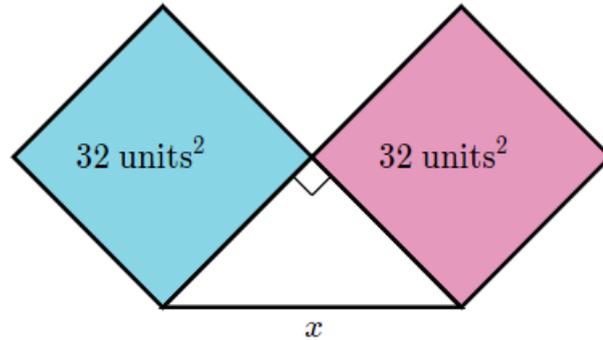
PYTHAGOREAN THEOREM



PYTHAGOREAN THEOREM



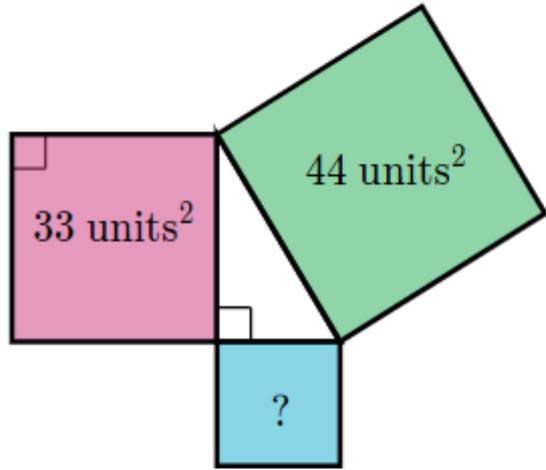
The areas of the squares adjacent to two sides of a right triangle are 32 units² and 32 units².



$$\begin{aligned} a^2 + b^2 &= c^2 \\ 32 + 32 &= c^2 \\ 64 &= c^2 \\ \sqrt{64} &= \sqrt{c^2} \\ 8 &= c \end{aligned}$$

Find the length, x , of the third side of the triangle.

The areas of the squares adjacent to two sides of a right triangle are shown below.

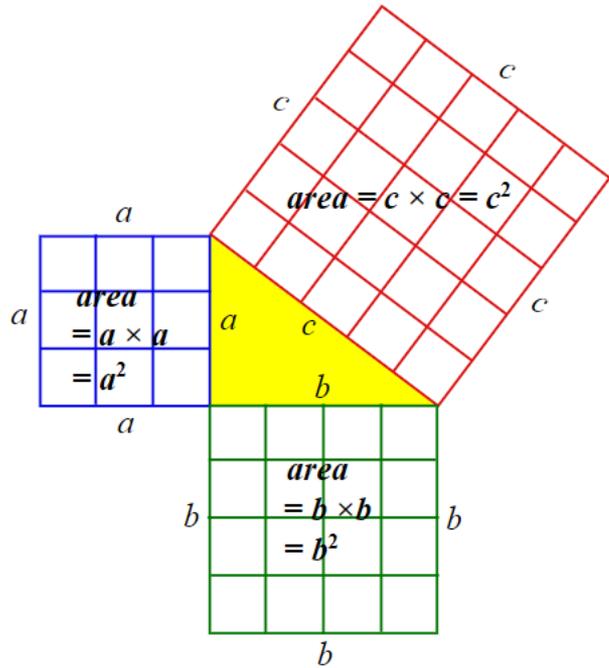


$$\begin{aligned}a^2 + b^2 &= c^2 \\33 + b^2 &= 44 \\44 - 33 &= b^2 \\11 &= b^2\end{aligned}$$

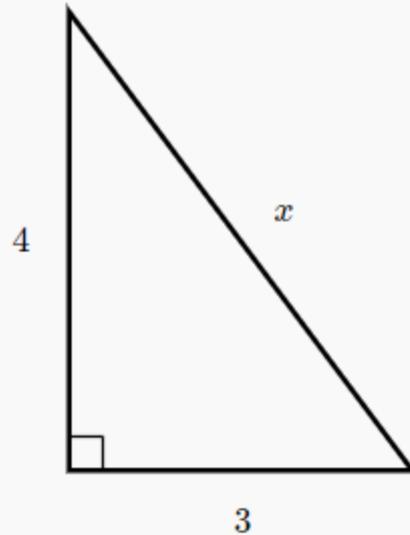
$$\begin{aligned}a^2 + b^2 &= c^2 \\33 + 11 &= 44\end{aligned}$$

What is the area of the square adjacent to the third side of the triangle?

PYTHAGOREAN THEOREM



Find the value of x in the triangle shown below.



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

$$4^2 + 3^2 = c^2$$

$$16 + 9 = c^2$$

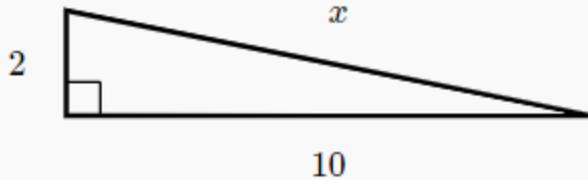
$$25 = c^2$$

$$\sqrt{25} = \sqrt{c^2}$$

$$5 = c$$

TRY THIS...

Find the value of x in the triangle shown below.



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

$$2^2 + 10^2 = c^2$$

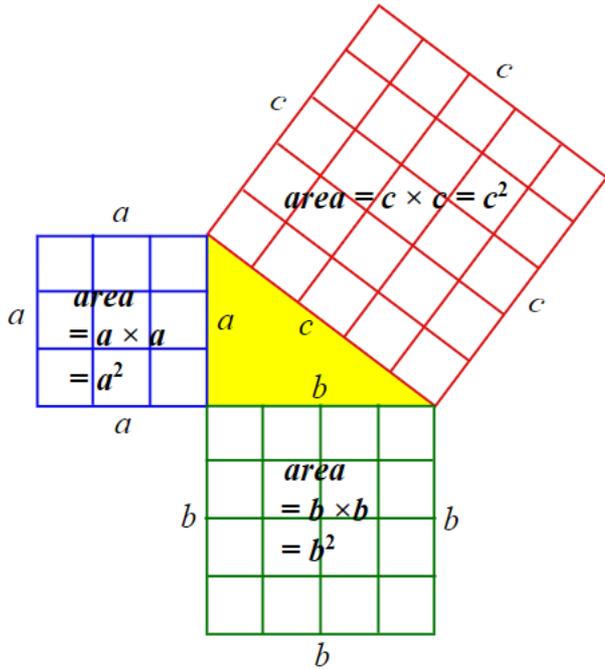
$$4 + 100 = c^2$$

$$104 = c^2$$

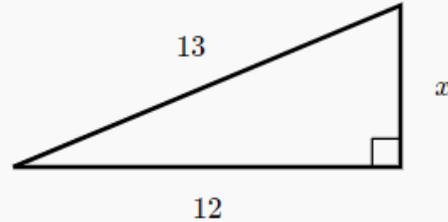
$$\sqrt{104} = \sqrt{c^2}$$

$$10.2 = c$$

TRY THIS...



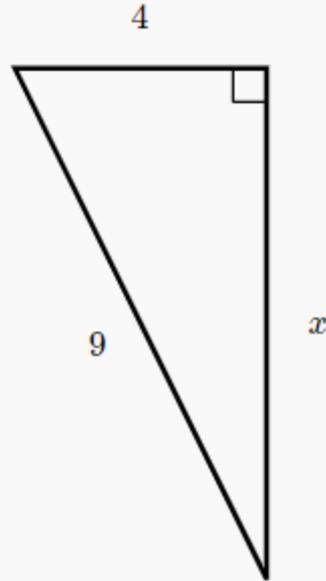
Find the value of x in the triangle shown below.



$$\begin{aligned}a^2 + b^2 &= c^2 \\c^2 - b^2 &= a^2 \\13^2 - 12^2 &= a^2 \\169 - 144 &= a^2 \\25 &= a^2 \\\sqrt{25} &= \sqrt{a^2} \\5 &= a\end{aligned}$$

TRY THIS...

Find the value of x in the triangle shown below.



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

$$c^2 - a^2 = b^2$$

$$9^2 - 4^2 = b^2$$

$$81 - 16 = b^2$$

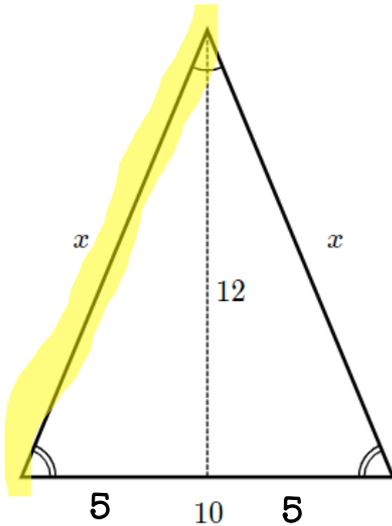
$$65 = b^2$$

$$\sqrt{65} = \sqrt{b^2}$$

$$8.06 = b$$

TRY THIS...

Find the value of x in the isosceles triangle shown below.

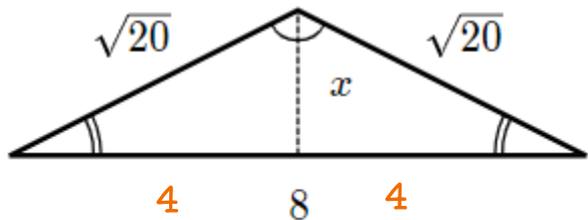


x represents equal side lengths

$$\begin{aligned}a^2 + b^2 &= c^2 \\5^2 + 12^2 &= c^2 \\25 + 144 &= c^2 \\169 &= c^2 \\\sqrt{169} &= \sqrt{c^2} \\13 &= c\end{aligned}$$

TRY THIS...

Find the value of x in the isosceles triangle shown below.



$$\begin{aligned}a^2 + b^2 &= c^2 \\ \sqrt{20}^2 - b^2 &= a^2 \\ 20 - 4^2 &= a^2 \\ 20 - 16 &= a^2 \\ 4 &= a^2 \\ \sqrt{4} &= \sqrt{a^2} \\ 2 &= a\end{aligned}$$

