But That's Too Hard!

Many of the hardest-looking Math questions contain fairly basic concept that are wrapped in confusing phrasing and unnecessary words. Using key strategies will make many of these questions a breeze!

- **Read the Final Question** — First, read and underline the question that's actually being asked. This will keep you from getting lost in the problem and help you start figuring out how to use the information you're given.

- **Plugging In** — When a question contains variables or relationships, make it easier by plugging In numbers for some or all of the variables:
    - Identify the variable(s). What would it be really helpful to have a value for?
    - Plug In a number for said variable(s)!
    - Work the steps of the problem.
    - The answer you get is your Target Value. Circle it.
    - Plug the number into your answer choices, eliminating anything that doesn't give you the Target Value. Be sure to check all four answers!

- **Plugging In The Answers** — When a question asks you to find a specific value and the answers are listed in numerical order, it's often easier and always more accurate to Plug In The Answers (PITA) instead of working through the problem. This especially goes for word problems—sure, you can set up an equation… but what if you set it up wrong? You're toast! To avoid losing points to minor errors, start with the answers and work backward:
    1. Label the answer choices—what value does the question ask you to find?
    2. Start with one of the middle answer choices (unless the question asks for the greatest or least value, in which case start at that end).
    3. Work through the steps of the problem using Bite-Sized Pieces.
    4. Eliminate answers that are too big or too small.
    5. When an answer works, STOP.

- **Bite-Sized Pieces** — Don't get overwhelmed by long questions packed with information! After you RTFQ, look for the pieces of information that are actually important, such as values or relationships; underline or circle them so you can separate them from anything unnecessary. Then work the question one step at a time. Write down your work, and don't worry about the next piece until you've figured out the one you're dealing with. Also, keep an eye on your answer choices—you'll often see some to eliminate as you go through each step.

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Practice Questions

12

$$BMI = \frac{w}{h^2} \times 703$$

A physician wants to determine if her patient is at a healthy weight for his height. She calculates his Body Mass Index (BMI) using the equation above, where w is the patient's weight in pounds and h is his height in inches. If the patient is 70 inches tall, which inequality best represents the approximate weights that would suggest that the patient has a BMI greater than 25 ?

A) $w > 175$

B) $w < 175$

C) $w > 150$

D) $w < 150$

14

$$\frac{6x - 1}{x + 4}$$

Which of the following is equivalent to the expression above?

A) $6 - \frac{25}{x + 4}$

B) $6 - \frac{1}{x + 4}$

C) $6 - \frac{1}{4}$

D) $\frac{6 - 1}{4}$

25

The length of a rectangle is decreased by 25 percent, and the width of the rectangle is increased by k percent. If the area of the rectangle increases by 5 percent, what is the value of k?

A) 25

B) 30

C) 35

D) 40

33

$$d = \frac{1}{2}at^2$$

The displacement d of an object in a vacuum, starting from rest with an acceleration a can be found using the formula above, where t is the time the object has been moving. A physics student uses the formula to determine the displacement of an object in a vacuum accelerating from rest for time t and an object with the same acceleration from rest for time $2.5t$. What is the ratio of the displacement of the object that accelerated for more time to the displacement of the object that accelerated for less time?

15

The equation $\dfrac{36y^2 + 43y - 25}{ky - 3} = -9y - 4 - \dfrac{37}{ky - 3}$ is true for all values of $y = \dfrac{3}{k}$, where k is a constant.

What is the value of k ?

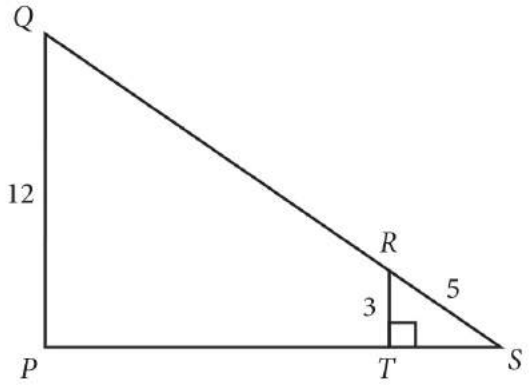
A) 27

B) 4

C) −4

D) −27

16



In the figure above, $\overline{PQ}$ is parallel to $\overline{RT}$. What is the length of $\overline{PS}$?

8

Richard either walks or rides his bicycle everywhere he goes. When he walks, he burns 50 calories per mile, and when he rides his bicycle, he burns 25 calories per mile. Richard can travel no more than 15 miles per day, but he wants to burn at least 500 calories per day. Which of the following systems of inequalities represents the situation in terms of w and b, where w is the number of miles he walks and b is the number of miles he rides his bicycle?

A) $50w + 25b \leq 500$
$w + b \leq 15$

B) $50w + 25b \geq 500$
$w + b \leq 15$

C) $50w + 25b \geq 500$
$w + b \geq 15$

D) $50w + 25b \leq 500$
$w + b \geq 15$

12

Taylor's garden produced 296 tomatoes, and he is preserving all the tomatoes in jars that hold either 3 or 5 tomatoes each. Taylor has a total of 80 jars. If he uses all the jars and preserves all the tomatoes, exactly how many of the jars hold 3 tomatoes?

A) 50

B) 52

C) 54

D) 56