

What is the mean of the unique prime factors of 60?

- A. 2
- B. 3
- ☒ C. 3.33
- D. 5
- E. 10

↳ mean =  $\frac{\text{Sum of values}}{\text{number of val}}$   $\frac{2+3+5}{3}$

$\frac{10}{3}$

3.33

60 = 2 × ~~2~~ × 3 × 5  
✓     ✓     ✓

By itself

2

3

~~4~~

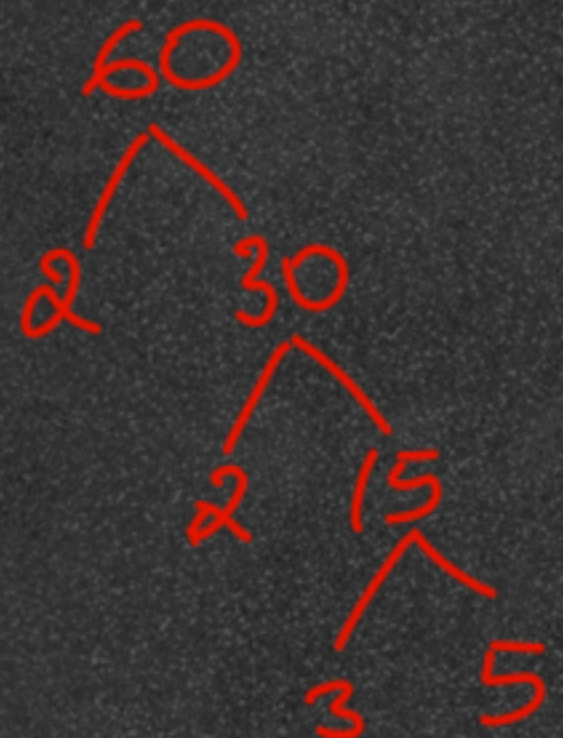
5

~~6~~

7

~~8~~

~~9~~



## Complex Numbers

$$\begin{array}{l} \sqrt{+4} = \sqrt{(+2)(+2)} = +2 \\ \sqrt{(-2)(-2)} = -2 \end{array} \left. \vphantom{\begin{array}{l} \sqrt{+4} \\ \sqrt{(-2)(-2)} \end{array}} \right\} \textcircled{\pm 2}$$

$$\begin{array}{l} \sqrt{9} = \sqrt{(+3)(+3)} = +3 \\ \sqrt{(-3)(-3)} = -3 \end{array} \left. \vphantom{\begin{array}{l} \sqrt{9} \\ \sqrt{(-3)(-3)} \end{array}} \right\} \pm 3$$

$$\sqrt{-4} = \begin{array}{l} (+2)(+2) \\ (-2)(-2) \end{array}$$

$$(-2)(-2)$$

$$\textcircled{(+2)(-2)}$$

Equal (no)

X

$$\sqrt{-4} = \sqrt{4 \times \boxed{-1}}$$

$$2 \sqrt{\boxed{-1}}$$

$$\underline{\underline{2i}}$$

Imaginary

In the complex numbers, where  $i = \sqrt{-1}$ , what is the value of  $(3 + 2i)(3 - 2i)$ ?

F. 5

G. 9

H. 13

J.  $9 - 4i$

K.  $13 + 12i$

$$\begin{array}{r} 3 + 2i \\ 3 - 2i \\ \hline -6i - 4i^2 \\ 9 + 6i \\ \hline 9 - 4i^2 \\ 9 - 4\sqrt{-1}^2 \\ 9 - 4(-1) \\ 9 + 4 \\ \hline 13 \end{array}$$

$$\sqrt{2^2} = \sqrt{4}$$

$$\underline{2} = 2$$

$$\sqrt{3^2} \\ 3$$

If  $5x - 3 = 2x + 12$ , what is the value of  $x^2 - 4$ ?

A. 5 ~~X~~

B. 21

C. 25

D. 29

E. 31

$$\begin{aligned} 5^2 - 4 \\ 25 - 4 \\ 21 \end{aligned}$$

Left  
Number

| Left     | Right     |
|----------|-----------|
| $5x - 3$ | $2x + 12$ |
| $+3$     | $+3$      |
| <hr/>    |           |

$$\begin{array}{r} 5x \\ -2x \\ \hline 3x \end{array} = \begin{array}{r} 2x + 12 \\ -2x \\ \hline 12 \end{array}$$

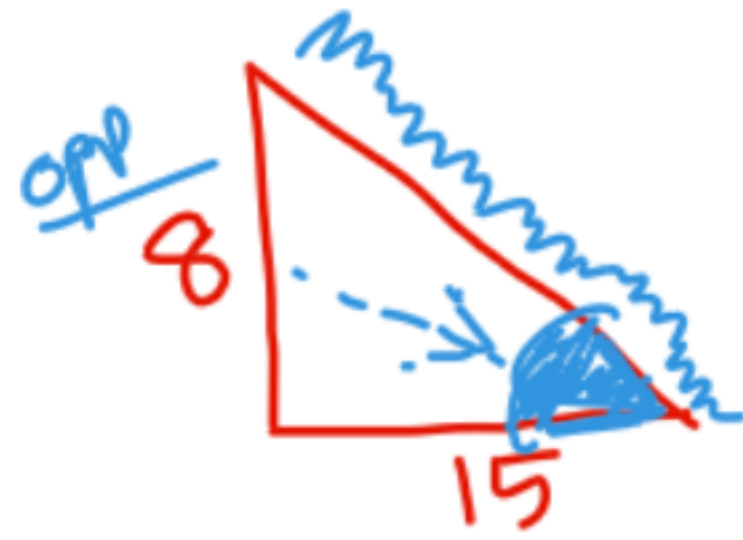
$$\begin{array}{r} 3x \\ \div 3 \\ \hline x \end{array} = \frac{12}{3}$$

Right  
Letter

$x = 5$

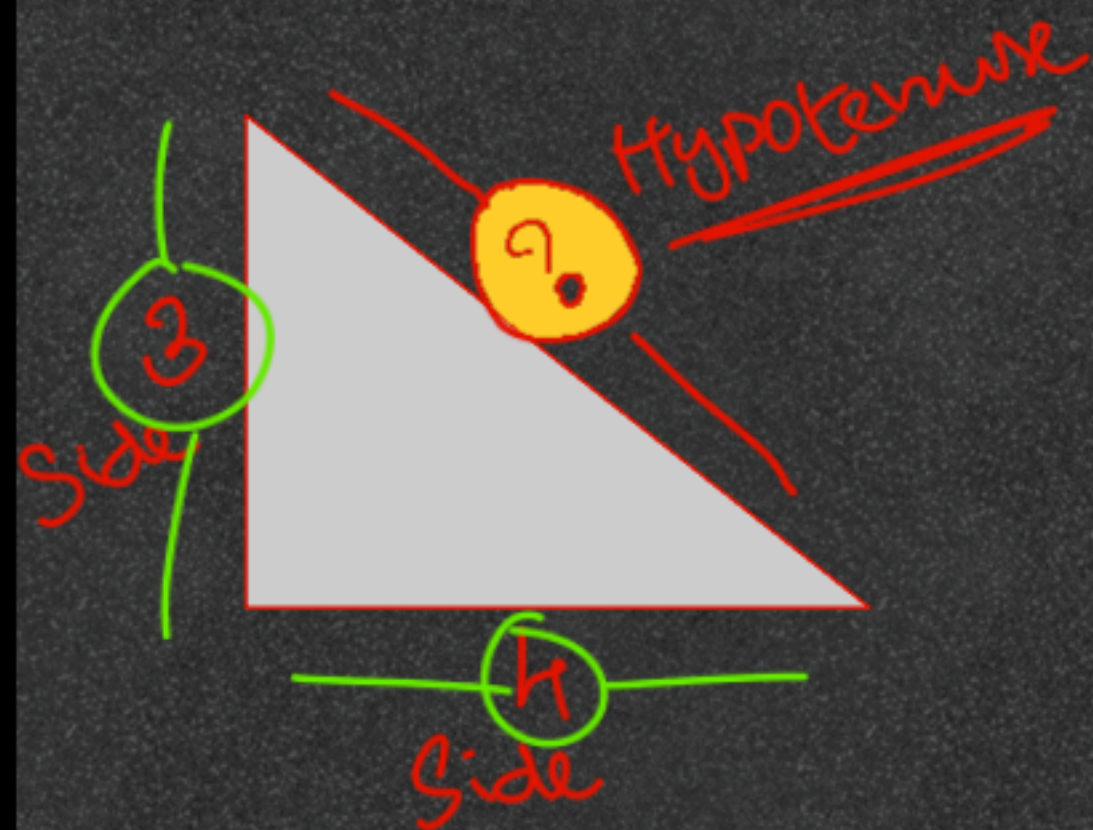
4. A right triangle has legs of length 8 inches and 15 inches. What is the sine of the angle opposite the 8-inch side?

- F. 8 / 17
- G. 15 / 17
- H. 8 / 15
- J. 15 / 8
- K. 17 / 8



$$\begin{aligned} \sin \theta &= \frac{\text{opp side}}{\text{hypo}} \\ &= \frac{8}{17} \end{aligned}$$

$$\begin{aligned} \text{Side}^2 + \text{side}^2 &= \text{hypo}^2 \\ 8^2 + 15^2 &= \text{hypo}^2 \\ 64 + 225 &= \text{hypo}^2 \\ 289 &= \text{hypo}^2 \\ \sqrt{289} &= \text{hypo} \\ 17 &= \text{hypo} \end{aligned}$$



Pythagorean theorem

$$\text{Side}^2 + \text{Side}^2 = \text{Hypo}^2$$

$$3^2 + 4^2 = \text{Hypo}^2$$

$$9 + 16 = \text{Hypo}^2$$

$$\sqrt{25} = \text{Hypo}$$

$$5 = \text{Hypo}$$

## TRIGONOMETRY



$$\sin \theta = \frac{\text{opposite side to } \theta}{\text{Hypotenuse}}$$

$$\cos \theta = \frac{\text{Adjacent side to } \theta}{\text{Hypotenuse}}$$

$$\tan \theta = \frac{\text{opposite side } \theta}{\text{Adjacent side to } \theta}$$

SOH

CAH

TOA

5. Which of the following is equivalent to the expression  $(2x - 3)^2$ ?

A.  $4x^2 - 9$

B.  $4x^2 + 9$

C.  $4x^2 - 6x + 9$

☒ D.  $4x^2 - 12x + 9$

E.  $4x^2 - 12x - 9$

Ex)  $5^2 = 5 \times 5$

$7^2 = 7 \times 7$

$(2x - 3)^2 = \begin{array}{r} 2x - 3 \\ 2x - 3 \end{array}$

$\begin{array}{r} 12 \\ 36 \\ \hline 12 \end{array}$

$\begin{array}{r} -6x + 9 \\ 4x^2 - 6x \\ \hline 4x^2 - 12x + 9 \end{array}$

$(2x - 3)^2 = (2x)^2 - 2(2x)(3) + 3^2$   
 $(a - b)^2 = a^2 - 2ab + b^2$   
 $= 4x^2 - 12x + 9$

Question 2

In the complex numbers, where  $i = \sqrt{-1}$ , what is the value of  $(5 + 3i)(5 - 3i)$ ?

A: 16

**C: 34**

B: 25

D:  $34 + 30i$

6

Mara Yellowhair

Kanishka

Rishith Anthony

A

Arianna Dean

BVR

## ACT / SAT Math Prep

Arianna Dean 11:38 AM

A

H

T

Kanishka 11:45 AM

yeah a little bit

Arianna Dean 11:50 AM

A

I understand it

Kanishka 11:50 AM

no its okay

Arianna Dean 11:55 AM

A

B

Mara Yellowhair 11:55 AM

4

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