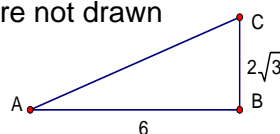


1. The spindle speed of a CD player is 240 revolutions per minute. How many revolutions does the spindle make while playing a song that lasts exactly 3 minutes 20 seconds?	1. 800 revolutions
2. $2008 + 200.8 + 20.08 + 2.008 = ?$	2. 2230.888
3. What number is forty more than forty percent of forty?	3. 56
4. Given the set of data {2, 5, 11, 7, 12, 16, 7, 9, 11, 7, 10, 13}, what is the median for this data?	4. 9
5. Using the data in #4, what is the mode of the data?	5. 7
6. What is the least common multiple of 45 and 18?	6. 180
7. Pencils cost 17¢ and pens cost \$1.35. If James buys 3 pencils and 2 pens, how much change should he get if he pays with a \$5 bill and there is no tax?	7. \$ 1.79
8. Mark, Alice, and Daniel are in a band called MAD. Mark plays drums and guitar. Daniel plays keyboard and drums. Alice plays guitar and maraca. If we randomly select one of the members of MAD, what is the probability that this person will play guitar? Give your answer as a common fraction.	8. $\frac{2}{3}$
9. Simplify: $3\left(\frac{1}{6} + \frac{1}{2}\right) - 2\left(\frac{2}{5}\right)$. Express your answer as a common fraction in lowest terms.	9. $\frac{2}{5}$
10. $\left(423 \times \frac{9}{25} \times \frac{15}{4}\right) - \frac{14}{5} \times 0.423 \times 25 = ?$	10. 423
11. If gasoline costs \$3.80 per gallon, how much will it cost to fill a 16-gallon tank that is $\frac{3}{4}$ empty?	11. \$ 45.60
12. From 7:45 pm to 9:30 pm, Jim drove a distance of 84 miles at a constant speed. What was his speed in miles per hour?	12. 48 mph
13. Margaret has a farm with pigs and chickens. She counts 30 feet and 9 heads at her farm. How many of each animal does she have? (There are <i>no</i> two-headed chickens!)	13. <u>6</u> pigs <u>3</u> chickens
14. If you earn a commission of 2% on a sale, how much would you earn on a sale of \$125,000.00?	14. \$ 3125
15. Simplify $\left(\frac{25}{9}\right)^{-\frac{3}{2}}$ and express your answer as a common fraction.	15. $\frac{27}{125}$
16. Find the length of segment AC in right triangle ABC. Figure not drawn to scale. Give your answer in simplest radical form.	16. $4\sqrt{3}$



17. Simplify: $\frac{2^{-1}+3^{-1}}{6^{-1}}$. Express your answer as a common fraction or integer.	17. 5
18. The harmonic mean , m , of a and b is given by $m = \frac{2}{\left(\frac{1}{a} + \frac{1}{b}\right)}$. What is the harmonic mean of 3 and 6?	18. 4
19. Superman and Batman are balanced on opposite ends of a seesaw. Superman weighs 220 pounds and is 9 feet from the fulcrum. Batman is 10 feet from the fulcrum, how many pounds does Batman weigh?	19. 198 pounds
20. Tim is twice as old as Zack, but Zack is three times as old as Mary was three years ago. Mary is eight years old. How old is Tim?	20. 30 years old
21. If $x - 3y = 7$, what is the value of $3x$ in terms of y ?	21. $9y + 21$
22. If n is a positive number and $\frac{1}{n} - \frac{1}{n+1} = \frac{1}{30}$, what is the value of n ?	22. 7
23. Given $\langle a b \rangle = ab - a - b$, find the value of b in the equation $\langle 3 b \rangle = 5$.	23. 4
24. Three positive integers are in the ratio 1:3:5 and have a sum of 72. What is the smallest of the three integers?	24. 9
25. Given $f(x) = x^2 - x - 1$, find $f(x)$.	25. $x^2 + x - 1$
26. If $x = \frac{7}{10}$ is a solution for $ax + \frac{1}{2} = \frac{1}{3}$, then $a = ?$ Give your answer as a common fraction.	26. $\frac{5}{3}$
27. A piece of wire 36 inches long is cut into 12 equal pieces that are soldered together to form the frame of a cube (all edges). What is the volume of the largest cube that can be formed with the wire?	27. 27 cubic units
28. What reduced common fraction is equivalent to $20\frac{5}{6}\%$?	28. $\frac{5}{24}$
29. If $n! = (n)(n-1)(n-2)\cdots(3)(2)(1)$, for what value of n will $(7!)(5!)(3!)(1!) = n!$?	29. 10
30. For the equation $2x^2 - x - 6 = 0$, what is the sum of the two solutions?	30. $\frac{1}{2}$

Tie-breaker: On the back of this paper, explain why $x^2 < x$ for $0 < x < 1$.

When you multiply any number by a number between 0 and 1 you reduce its value. So multiplying a number between 0 and 1 by itself makes the result smaller than what you started with, but still positive.