Arithmetic Sample Questions

Answers with Explanations and Ratings

1. Rating: Easy/Medium

Explanation: In order to add numbers involving decimals, the key is to line up your decimal points so that all of your place values will line up. Once the place values are lined up, add the numbers as you normally would, beginning with the column on the right.

Answer: $\begin{array}{r} 2.750 \\ 0.003 \\ +0.158 \\ \hline 2.911 \end{array}$ B

2. Rating: Easy/Medium

Explanation: In order to multiply numbers involving decimals, the numbers will multiply the same as they would without decimals. The decimal point is placed last, once the result is obtained. The placement of the decimal point counts from the right edge and accounts for the total number of decimal places that the problem started with.

7.86 has 2 decimal places. 4.6 has 1 decimal place. Therefore, the problem has a total of 3 decimal places, so the result must have 3 decimal places.

Answer: $7.86 \times 4.6 = 36.156$ A

3. Rating: Easy/Medium

Explanation: In order to turn a fraction into a decimal, you treat it as a division problem. In order to continue the division past the 7, put a decimal point and add zeros until the division has no remainder.

$\frac{7}{20} = 7 \div 20 = 7.00 \div 20$ 20√7.00

Answer: $\frac{7}{20} = 0.35$ C

4. Rating: Easy

Explanation: In order to compare numbers involving decimals, compare each column of digits, beginning at the decimal point. The one with the smallest digit is the least.

Answer: 0.015 C

5. Rating: Easy/Medium

Explanation: The key to this problem is remembering that "percent" means "out of 100." In decimal form, 25 percent is 0.25; in fraction form, you can write 25 percent as $\frac{25}{100}$, which is equal to 1/4 when you reduce it. By process of elimination, the only choice that is not equivalent to 25 percent of N is

Answer: 25N D

6. Rating: Easy/Medium

Explanation: The key to this problem is use rounding. Rounding each of the numbers to the nearest whole number, 27.8 rounds to 28, and 9.6 rounds to 10.

$28 \times 10 = 280$

Answer: 280 A

7. Rating: Medium

Explanation: This is a straight multiplication problem. However, you must first remember to convert your percent to its decimal or fraction form.

$160 \times 0.65 = 104$

Answer: 104 B

8. Rating: Hard

Explanation: In this problem, you must remember that the three people are still doing only 1 job. Therefore, all three fractional parts must total 1. The first person used 1/2 his time, the second person used 1/3 his time, and you need to know how much is left for the third person to finish.

First, figure out what fraction of the job has been completed by adding the fractions from the first 2 people. Note: remember when adding or subtracting fractions, you must have a common denominator.

$\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$ So 5/6 of the job is done.

To find out what is left, subtract this from 1 job: $1 - \frac{5}{6} = \frac{6}{6} - \frac{5}{6} = \frac{1}{6}$

Answer: 1/6 C

9. Rating: Medium

Explanation: The simplest way to do this problem is to set up and solve the percent proportion using cross-multiplication. The percent proportion can be set up easily if you look for the key words:

$\frac{(is)}{(of)} = \frac{percent}{100}$ so in this problem you have $\frac{32}{x} = \frac{40}{100}$

Cross-multiplication gives you $3200 = 40x$
Divide both sides by 40 to solve for x, and you find x = 80.

Answer: 80 C

10. Rating: Medium

Explanation: There are two ways to subtract mixed numbers. You could leave them as mixed numbers and subtract the fractions and whole numbers individually. However, in this case, that would involve borrowing from the whole numbers to subtract the fractions, which might get confusing. The simplest way to do this problem is to change the mixed numbers to improper fractions and then subtract.

$3\frac{1}{3} = \frac{10}{3}$ $2\frac{2}{5} = \frac{12}{5}$ $\frac{10}{3} - \frac{12}{5} = \frac{50}{15} - \frac{36}{15} = \frac{14}{15}$

Note: remember when adding or subtracting fractions, you must have a common denominator.

Answer: 14/15 C

11. Rating: Medium

Explanation: Just like the previous problem, there are two ways to add mixed numbers. You could leave them as mixed numbers and add the fractions and whole numbers individually. However, in this case, that would involve regrouping, which might get confusing. I would make the same suggestion as the previous problem. The simplest way to do this problem is to change the mixed numbers to improper fractions and then add.

$2\frac{1}{2} = \frac{5}{2} 4\frac{2}{3} = \frac{14}{3}$ $\frac{5}{2} + \frac{14}{3} = \frac{15}{6} + \frac{28}{6} = \frac{43}{6}$

Note: remember when adding or subtracting fractions, you must have a common denominator. When you are finished adding the fractions, change your result back to a mixed number.

Answer: $\frac{43}{6} = 7\frac{1}{6}$ C

12. Rating: Easy

Explanation: This is a straight division problem. However, you must remember to take your division result to 1 decimal place so that you can round to the nearest integer (whole unit).

$\frac{1{,}345}{99} = 1{,}345 \div 99 \approx 13.5$ 13.5 will round up.

Answer: 14 C

13. Rating: Easy/Medium

Explanation: If four numbers have an average of 8, their total must be (8)(4) = 32.
If the first 3 numbers have a total of 22, the fourth number must account for the remainder of this total.

Answer: 32 -22 = 10 D

14. Rating: Easy/Medium

Explanation: When multiplying by powers of ten, the digits will remain the same. You only need to move the decimal place. Since the power on 10 is negative, you need to move the decimal place to the left.

$46.2 \times 10^{-2} = 0.462$

Answer: 0.462 B

15. Rating: Easy/Medium

Explanation: When dividing fractions, remember "keep-change-flip." Keep the first fraction as you see it, change the division to multiplication, and flip the second fraction.

$\frac{3}{2} \div \frac{1}{4} = \frac{3}{2} \times \frac{4}{1} = 6$ So the result is 6, which is between

Answer: 5 and 7 C

16. Rating: Medium

Explanation: The simplest way to do this problem is to set up and solve the percent proportion using cross-multiplication. The percent proportion can be set up easily if you look for the key words:

$\frac{(is)}{(of)} = \frac{percent}{100}$ so in this problem you have $\frac{x}{120} = \frac{12}{100}$

Cross-multiplication gives you $1440 = 100x$
Divide both sides by 100 to solve for x, and you find x = 14.4.

Answer: 14.4 B

17. Rating: Hard

Explanation: In this problem, you must remember that the three types of books are still in only 1 box. Therefore, all three fractional parts must total 1. The history books used 1/3 of the box, the English books used 1/6 of the box, and you need to know how much is left for the science books.

First, figure out what fraction of the box has been filled by adding the fractions from the first 2 types of books. Note: remember when adding or subtracting fractions, you must have a common denominator.

$\frac{1}{3}+\frac{1}{6}=\frac{2}{6}+\frac{1}{6}=\frac{3}{6}$ So 3/6 of the box has been counted.

To find out what is left, subtract this from 1 box: $1-\frac{3}{6}=\frac{6}{6}-\frac{3}{6}=\frac{3}{6}$ This will reduce to 1/2.
Answer: 1/2 B

18. Rating: Easy

Explanation: In this problem, you must remember that the three angles of a triangle will always total 180 degrees. Add the two angles you know and subtract the result from 180 to find the remaining angle.

35 + 45 = 80
180 - 80 = 100

Answer: 100 B

19. Rating: Medium/Hard

Explanation: This requires multiplication with mixed numbers. You must first change your mixed number to an improper fraction, then multiply.

$3\frac{1}{2}=\frac{7}{2}\frac{7}{2}\times\frac{2}{3}=\frac{7}{3}$ This is how much of the fabric has been used. To find out much is left, you must subtract this from what you started with:

$\frac{7}{2}-\frac{7}{3}=\frac{21}{6}-\frac{14}{6}=\frac{7}{6}$Changing this back to a mixed number, $\frac{7}{6}=1\frac{1}{6}$
Answer: 1 1/6 C

20. Rating: Hard

Explanation: In this problem, you must find the total amount of tile needed before you can find the total cost. To do that, you need the area of the room. Since it is a rectangular room, area= length x width, so the area of this room is 12 feet x 8 feet = 96 square feet.
Once you have the area, you can then multiply it by the cost to get the total cost: (96)($2.50)= $240

Answer: $240 D