



Competitive Math Assessment - Equations Practice Quiz #1

Here are some suggestions for how to practice replicating testing conditions:

- Make sure you have a quiet place to practice on your own for an extended period of time. This will help model the actual experience of a competition. When you have finished the quiz, check your solutions using the online Brilliant quiz.
- Set a timer, or at least keep an eye on the clock to learn your own pace. If you want to set a specific time goal, math competitions provide an average of about 2 minutes per problem, so you should give yourself 30-40 minutes to complete these problems. Keep in mind that the general difficulty of problems increases as you move forward.
- Some competitions allow students to use calculators while others do not. We encourage you to use a calculator only for the most in-depth calculations on this practice quiz.

1. _____ If $\frac{8}{20} = \frac{6}{n}$ what is the value of n ?

2. _____ What is 80% of 150% of 25?

3. _____ The ratio of boys to girls at a middle school is 3:5. If there are 240 total students in the school, how many boys are there?

A. 30 hours

B. 90 hours

C. 150 hours

D. 180 hours

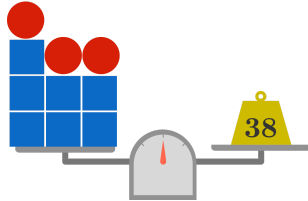
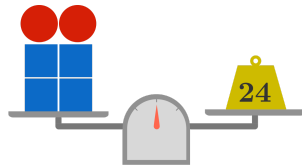
4. _____ When the sum of $3n$ and 4 is divided by 5, the result is 11. What is the value of n ?

5. _____ If $6(x + 2) = 4(2x + 5) - 3x$, what is the value of x ?

6. _____ 5 bakers can prepare 30 pies in 2 hours. How many hours do 7 bakers need to prepare 63 pies?
- A. 3 hours B. 4 hours
C. 5 hours D. 6 hours
7. _____ Gustavo has \$15 in nickels, dimes, and quarters. He has twice as many nickels as quarters. He has 15 more dimes than quarters. How many nickels does Gustavo have?
8. _____ The sum of four consecutive odd integers is 128. What is the smallest of the four integers?
- A. 25 B. 27
C. 29 D. 32
9. _____ Natasha is driving to visit a friend in another city that is 560 miles away. She begins driving at noon going 50 miles per hour. At some point she realizes that she is going to arrive late, so she speeds up to 60 miles per hour. She arrives at her friend's house at 10:00 pm. At what time did she decide to speed up?
- A. 2:00 pm B. 3:00 pm
C. 4:00 pm D. 5:00 pm
E. 6:00 pm F. 7:00 pm

10. _____

What is the weight of one blue square?



11. _____

Christian and Ernie both have marble collections. $\frac{3}{8}$ of Christian's marbles and $\frac{1}{5}$ of Ernie's marbles are blue. They have the same number of blue marbles. Combined, they have 92 marbles. How many marbles does Ernie have?

12. _____

The sum of four consecutive, positive odd integers is a perfect cube. What is the smallest possible integer that could be the least of the four?

13. _____

Arnav is making lemonade. He currently has 6 liters of lemonade that is 10% lemon juice. If he wants his final drink to be 20% lemon juice how many liters of pure lemon juice should he add?

- A. 0.50 liters
- B. 0.75 liters
- C. 1.50 liters
- D. 2.00 liters
- E. 2.75 liters

14. _____

The tenth number in an arithmetic sequence is equal to four times the first number. The sum of the first 10 numbers of the sequence is 450. What is the first number in the series?

15. _____ Jenna and Vanessa both ran the same race. Jenna ran at an average speed that was 40% faster than Vanessa's average speed and finished 10 minutes before her. How many minutes did it take Vanessa to run the race?