

Supercharged Math Placement Test for 6th Graders

Congratulations on completing the content up through 6th grade!

Your student has the option to decide whether they are ready for the more rigorous *Algebra 1* course, or a softer approach *Grades 7th and 8th Middle School Math* courses.

- **Algebra 1 is a High School level course**, and many middle schoolers are ready for it. If that's you, take this test and if you score 90% correct or higher, you're ready!
- **Grades 7th - 8th Middle School Math** is slower-paced, giving your student the time they need to develop their skills before diving into a high school level course.

If your student is going to be taking the *Grades 7th - 8th Middle School Math* track, they will have the option of moving into the second half of *Algebra 1* when they finish, as they will have already covered the first half in Grades 7 & 8. This gives students time to work through the coursework and the advanced lab work at a comfortable pace. Hint - there's no wrong way to do this! Students will be covering the same concepts, just in a different order and at a different pace.

Answer key is on the last page.

Please do not use a calculator for questions 1 – 9.

1. Simplify mentally:

$$36,421 \div 1,000$$

$$63.597 \times 100$$

2. Divide and round your answer to the hundredths place:

$$\begin{array}{r} 246.375 \\ \hline 1.2 \end{array}$$

3. Today you bought lunch for \$15.57. How much change do you get from a \$20 bill?

4. A length of wood measures $4' 3\frac{1}{4}"$. We cut a length $1' 3\frac{7}{8}"$ off the end. How much is left? (Express answer as a fraction.)

5. How much fence do we need for a square garden measuring 36 m^2 ?

6. Simplify:

$$6\frac{1}{4} \cdot 3\frac{3}{5} \div 4\frac{1}{2}$$

$$3\frac{3}{8} \div 2\frac{1}{4} - 1\frac{1}{3}$$

7. Simplify 19.81×0.011 rounded to nearest thousandths.

8. Round 0.0003594 to the nearest millionth and write in scientific notation.

9. Would you earn more on \$10,000 invested in a CD (3.5% annual, simple interest) or invested in a Money Market account (3%, compounded monthly) over 4 years?

You may use a calculator for questions 10 – 20.

10. Simplify $6 - 2(\frac{1}{2}) + 3(6.2) \div 2.4 \times 10^2$

11. Convert $\frac{32}{45}$ to a percent.

12. There are 54 million books in the New York Public Library (no kidding!). The NYPL has 92 locations: four are research centers and the rest are neighborhood libraries. If each neighborhood library has 112,500 items, how many are in the four research centers combined?

13. How long does it take to drive 172 miles in your new sports car if your average speed is 67 mph? (Express your answer in hours and minutes.)

14. An Olympic-size swimming pool holds approximately 660,000 gallons of water.

a. A standard garden hose has a flow rate of about 9 gallons per minute.

How long will it take to completely fill the pool?

b. A standard firehose has a flow rate about 100 gallons per minute.

Calculate how long it will take to fill the swimming pool with a firehose.

15. What is the total price of a \$12.50 item at a restaurant with 7.25% tax after leaving a 15% tip and using a 25% discount coupon?

16. Calculate the length of a side of a cube that has a surface area of 26.5 cm^2 .

17. Convert 83 kilometers per hour to miles per hour.

18. A car travels 56 miles on 2.5 gallons of gas. How many gallons of gas are used for a trip of 650 miles? If the tank holds 16.8 gallons, how far can the car go on one tank of gas? How many tanks of gas do you need, how many gas station stops do you need minimum, and how much is a one-way trip of 650 miles going to cost?

19. Convert 73 ounces to pounds.

20. A laptop weighs 7.28 lbs, and its case weighs 1.43 lbs. The airline has a 50 lb weight limit for your carry-on luggage. If you take the laptop with its case, how much weight is left for the rest of your carry-on luggage?

Answers:

1. 36.421
6,359.7
2. 205.31
3. \$4.43
4. 2' 11-3/8"
5. 24 meters
6. 5
1/6
7. 0.218
8. 3.59×10^{-4}
9. CD (\$11,400) earns more than the Money Market account (\$11,273.28)
10. 780
11. 71.1%
12. 44,100,000 items in the four research centers combined.
13. 2 hours 34 minutes
14. About 51 days (1,222 hours)
About 4.6 days (110 hours)
15. \$11.46
16. 2.1 cm
17. 51.6 mph
18. The car uses about 29 gallons of gas for a 650 mile road trip; the car can travel 376 miles on one tank of gas. You'll need 1.732 tanks of gas, which means the cost of the trip is \$109.98 or about \$110 for one way (650 miles), and if you start with a full tank of gas, then you only have to stop once before reaching your destination.
19. 4.56 pounds
20. 41.29 pounds (about 41 pounds)