

Sample Math Skills Test

NOTE: You will not be allowed to use a calculator on the Math Skills Test.

Below are arithmetic sample questions that include addition, subtraction, multiplication, division, fractions, decimals, percentages, and order of operations.

1.
$$\begin{array}{r} 2,317 \\ 955 \\ + 3,187 \\ \hline 6,459 \end{array}$$

2.
$$\begin{array}{r} 56 \\ \times 93 \\ \hline 5,208 \end{array}$$

3.
$$\begin{array}{r} 2,205 \\ \div 15 \\ \hline 147 \end{array}$$

4.
$$\begin{array}{r} 5,767 \\ - 158 \\ \hline 5,609 \end{array}$$

5.
$$\begin{array}{r} 4,383 \\ \div 12 \\ \hline 365.25 \end{array}$$

6.
$$\begin{array}{r} 3,231 \\ 59 \\ + 880 \\ \hline 4,170 \end{array}$$

7.
$$\begin{array}{r} 7,676 \\ - 5,858 \\ \hline 1,818 \end{array}$$

8.
$$\begin{array}{r} 18 \\ \times 436 \\ \hline 7,848 \end{array}$$

9.
$$\frac{3}{4} + \frac{1}{4} = 1$$

10.
$$\frac{5}{12} + \frac{1}{4} = \frac{2}{3}$$

11. 35% of 80 = 28

12.
$$1\frac{7}{8} \div 3 = \frac{5}{8}$$

13. $9 + 4(10 - 8 \div 4) = 41$

14.
$$3\frac{1}{2} \times 1\frac{1}{4} = 4\frac{3}{8}$$

15.
$$\begin{array}{r} 8.10 \\ \times 9.10 \\ \hline 73.71 \end{array}$$

16.
$$\begin{array}{r} 0.19 \\ \times 1.80 \\ \hline 0.342 \end{array}$$

Below are sample word problems that include the following arithmetic operations: addition, subtraction, multiplication, division, decimals, percentages, basic algebra, and geometry skills.

17. Stephanie ran 3 miles in 36 minutes. At this rate, what is the total number of minutes it will take Stephanie to run 2 miles?

$$\frac{36 \text{ minutes}}{3 \text{ miles}} = \frac{12 \text{ minutes}}{1 \text{ mile}} \times 2 \text{ miles} = 24 \text{ minutes}$$

It will take Stephanie **24 minutes** to run 2 miles.

19. A shopper at a clearance sale discovers computer monitors on sale for \$360 each. The original price for each monitor was \$900. What is the discount, as a percentage?

$$\begin{aligned} \$900 - \$360 &= \$540 \text{ (discounted amount)} \\ \frac{\$540}{\$900} &= 0.6 \times 100\% = 60\% \end{aligned}$$

The sales tax percentage is **60%**.

21. The cost of a movie ticket is \$9.50. Soft drinks cost \$4.50 each. What is the total cost for 13 people to each purchase a movie ticket and a soft drink?

$$\begin{aligned} \$9.50 + \$4.50 &= \$14 \text{ (price per person)} \\ \$14 \times 13 &= \$182 \end{aligned}$$

The total price for 13 people is **\$182**.

23. Samuel bought 4 rolls of tape to close boxes. Each roll contains 32.9 meters of tape and he uses 1.2 meters of tape to seal each box. How many boxes can Samuel tape closed with 4 rolls of tape?

$$32.9 \text{ meters} \times 4 = 131.6 \text{ meters}$$

$$131.6 \text{ meters} \div 1.2 \text{ meters} = 109.67 \text{ boxes}$$

Samuel can tape **109** boxes with 4 rolls of tape.

18. Whitney uses a calculator to figure out the total cost of a \$700 clarinet. Including sales tax, the total is \$763. What is the sales tax percentage?

$$\begin{aligned} \$763 - \$700 &= \$63 \text{ (sales tax)} \\ \frac{\$63}{\$700} &= 0.09 \times 100\% = 9\% \end{aligned}$$

The sales tax percentage is **9%**.

20. Mr. Hong purchased a condo several years ago at a selling price of \$294,520. Recently it was appraised at a value 12% lower than that. What is the value of the condo now, rounded to the nearest dollar?

$$\begin{aligned} \frac{12\%}{100\%} &= 0.12 \text{ (converting percent to decimal)} \\ \$294,520 \times 0.12 &= \$35,342.40 \\ \$294,520 - \$44,178 &= \$259,177.60 \end{aligned}$$

The value of the condo is now **\$259,178**.

22. A farmer has determined that 15% of harvested apples are spoiled. If the farmer harvested 200 apples, how many good apples will be left?

$$\begin{aligned} \frac{15\%}{100\%} &= 0.15 \text{ (converting percent to decimal)} \\ 200 \times 0.15 &= 30 \\ 200 - 30 &= 170 \end{aligned}$$

There will be **170** good apples.

24. Alisha wants to buy a camera that costs \$728, including sales tax. She has saved \$45 each week for the past 8 weeks. How much more money does Alisha need to purchase the camera?

$$\$45 \times 8 \text{ weeks} = \$360 \text{ saved}$$

$$\$728 - \$360 = \$368 \text{ needed}$$

Alisha needs to save **\$368** more to purchase the camera.

25. Jessica is purchasing fencing to enclose a station. The station measures 12 feet wide and 15 feet long. What is the least amount of fencing that she will need to enclose the station?

The perimeter of the station (the length around the station) is equal to width + width + length + length, or $2 \times \text{width} + 2 \times \text{length}$.

$$P = (2 \times 12 \text{ ft}) + (2 \times 15 \text{ ft}) = 24 \text{ ft} + 30 \text{ ft} = 54 \text{ ft}$$

Jessica needs a minimum of **54 feet** of fencing.

27. Which decimal is equivalent to $\frac{3}{5}$.

The fraction $\frac{3}{5}$ can be converted to a decimal by dividing 3 by 5, such as $3 \div 5$ or shown as $5 \overline{)3}$

This can be solved as follows

$$\begin{array}{r} 0.6 \\ 5 \overline{)3.0} \\ \underline{-30} \\ 0 \end{array}$$

The decimal equivalent to the fraction $\frac{3}{5}$ is 0.6.

29. What is the area of a right triangle with a base of 4 feet and a height of 8 feet?

The area of a right triangle can be calculated using the following equation:

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{Area} = \frac{1}{2} \times 4\text{ft} \times 8\text{ft}$$

$$\text{Area} = 16 \text{ ft}^2$$

The area of the right triangle is **16 ft²** (square feet or feet squared).

26. Aidan's age is 6 years less than half of Maggie's age. Aidan's age is 4 years. What is Maggie's age?

The equation for Maggie's age (M) compared to Aidan's age (A) is as follows:

$$A = \frac{M}{2} - 6$$

Solving for Maggie's age (M) gives

$$M = 2(A + 6)$$

Substituting 4 years for Aidan's age gives

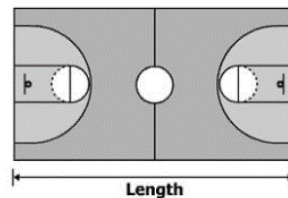
$$M = 2(4 + 6) = 2(10) = 20$$

Maggie is **20** years old.

28. Which rule can be used to find the next number in this increasing pattern? 3, 4, 6, 9, 13, 18, 24, _____

To determine the pattern, you must look for the differences in between the numbers. Are they being added or multiplied together? Is a number being added or subtracted? And so on. In this case, the difference between 3 and 4 is 1, between 4 and 6 is 2, between 6 and 9 is 3, and so on. For the final number, you would have to **add 7**.

30. The city is building a new outdoor basketball court. Which is most likely the length of the new outdoor basketball court?



With an idea of what a basketball court looks like, we can eliminate some answers as impracticable. A meter is just over 1 yard. Therefore, 94 centimeters (which is less than a meter) is not a realistic length for a basketball court. Neither is 94 inches, which is just under 8 feet. A kilometer is equal to 1,000 meters. Therefore, 94 kilometers is also unrealistic. This leaves only 94 ft. Although you might not be able to see exactly how long **94 feet** is, it is more realistic than any other answer.