

Grade 7 Math Diagnostic Test

Free Printable Skill Check

Student Name	
Date	
Teacher/Parent	

20 Questions	35 Minutes	No Calculator
------------------------------------	----------------------------------	-------------------------------------

Common Core-aligned skill check for US middle-school mathematics

Original assessment content. Not an official or endorsed Common Core assessment.

Instructions | Read before you begin

How to use this diagnostic

- Allow about 35 minutes.
- Do not use a calculator.
- Choose one answer for each multiple-choice question.
- Show your work for short-answer and problem-solving questions.
- Complete all 20 questions. Each question is worth 1 point.

Quick Answer Record

1		2		3		4	
5		6		7		8	
9		10		11		12	
13		14		15		16	
17		18		19		20	

Skills Assessed

Domain	Questions	Maximum Score
Ratios and Proportional Relationships	1-4	4
The Number System	5-8	4
Expressions and Equations	9-12	4
Geometry	13-16	4
Statistics and Probability	17-20	4

Questions 1-4 | Proportional relationships and percent reasoning

1 A cyclist travels 7.5 miles in 1.5 hours. What is the unit rate?

- A. 3 miles per hour
- B. 5 miles per hour
- C. 6 miles per hour
- D. 9 miles per hour

2 The table shows a proportional relationship: $x = 2, 4, 6$ and $y = 7, 14, 21$. Write an equation relating y to x .

3 A jacket costs \$80 and is discounted by 25%. What is the sale price?

- A. \$20
- B. \$55
- C. \$60
- D. \$75

4 Find the simple interest on \$300 at 4% per year for 2 years.

Questions 5-8 | Positive and negative rational numbers

5 Compute: $-8 + 13$

- A. -21
- B. -5
- C. 5
- D. 21

6 Compute: $-3.5 - 2.25$

7 Compute: $(-3/4) \times (8/9)$

8 The temperature was 6.5 degrees Celsius and then dropped 9.75 degrees. What was the new temperature?

- A. -16.25 degrees Celsius
- B. -3.25 degrees Celsius
- C. 3.25 degrees Celsius
- D. 16.25 degrees Celsius

Questions 9-12 | Expressions, equations, and inequalities

9 Simplify: $4(2x - 3) + 5x$

10 Solve: $3x + 7 = 25$

- A. $x = 4$
- B. $x = 6$
- C. $x = 8$
- D. $x = 10$

11 Solve: $5(x - 2) = 35$

12 Solve and graph mentally: $4n - 3 \leq 17$

- A. $n \leq 5$
- B. $n \geq 5$
- C. $n \leq 20$
- D. $n \geq 20$

Questions 13-16 | Scale, circles, angles, and surface area

- 13** On a scale drawing, 1 inch represents 8 feet. A wall measures 3.5 inches on the drawing. What is the actual length?

- 14** A circle has radius 5 cm. Using $\pi = 3.14$, find its circumference.

- A. 15.7 cm
- B. 31.4 cm
- C. 62.8 cm
- D. 78.5 cm

- 15** Two adjacent angles form a straight line. One angle measures 127 degrees. Find the other angle.

- 16** Find the surface area of a rectangular prism with length 4 cm, width 3 cm, and height 2 cm.

Questions 17-20 | Sampling, variability, and probability

- 17** In a random sample of 50 students, 32 prefer option A. About how many students out of 400 would be expected to prefer option A?

- 18** Data set A has mean 12 and MAD 1.5. Data set B has mean 12 and MAD 4. Which data set is more spread out?

- A. Data set A
- B. Data set B
- C. They have the same spread
- D. Not enough information

- 19** A bag contains 5 red, 3 blue, and 2 green counters. What is the probability of selecting a counter that is not blue?

- 20** A fair spinner numbered 1 through 4 is spun and a fair coin is tossed. What is the probability of spinning an even number and getting heads?

- A. $\frac{1}{8}$
- B. $\frac{1}{4}$
- C. $\frac{1}{2}$
- D. $\frac{3}{4}$

Scratch Work | Use this page for calculations and diagrams