



Math Foundations II

TESTS MASTERY OF MATH FOUNDATIONS I • 20 ITEMS • 45-60 MINUTES • NO CALCULATOR

This diagnostic probes whether the whole-number understanding built in Math Foundations I is secure enough to carry multiplication, division and fractions. Gaps found here are repaired inside the ordinary flow of the week, not by holding a student back.

BEFORE YOU BEGIN

No calculator. Show working wherever there is space - the method tells us more than the answer.

If a question is unfamiliar, leave it blank. A blank is more useful to us than a guess.

An adult may read questions aloud but should not explain the mathematics.

Stop and resume later if the student tires. Fatigue produces errors that look like gaps but are not.

SECTION A Multiple choice

10 items

Choose one answer. If you are unsure, leave it blank rather than guessing.

01 What is the value of the 7 in 4,738?

- A) 700
- B) 70
- C) 7
- D) 7,000

02 Which number sentence is true?

- A) $6 \times 4 = 4 \times 6$
- B) $6 - 4 = 4 - 6$
- C) $12 / 3 = 3 / 12$
- D) $6 + 4 = 6 \times 4$

03 What is $306 - 148$?

- A) 158
- B) 242
- C) 168
- D) 258



- 04** Which of these is a factor of 24?
- A) 6
 - B) $24 + 1$
 - C) 48
 - D) 7
- 05** Which fraction is equivalent to one half?
- A) $\frac{4}{8}$
 - B) $\frac{1}{4}$
 - C) $\frac{2}{1}$
 - D) 1.2
- 06** A rectangle is 6 cm long and 4 cm wide. What is its area?
- A) 24 sq cm
 - B) 20 cm
 - C) 10 sq cm
 - D) 24 cm
- 07** Which is largest?
- A) 0.7
 - B) 0.25
 - C) 0.099
 - D) 0.1
- 08** 48 pencils are shared equally into 6 boxes. How many in each box?
- A) 8
 - B) 42
 - C) 288
 - D) 6
- 09** Which number is prime?
- A) 13
 - B) 15
 - C) 21
 - D) 1



10 $\frac{3}{8} + \frac{2}{8} =$

- A) $\frac{5}{8}$
- B) $\frac{5}{16}$
- C) $\frac{6}{8}$
- D) 5

SECTION B Student solving

6 items

Show your working. We are reading the method, not only the answer.

11 Work out 27×4 . Show your method, whatever method you use.

12 Write three fractions that are equivalent to $\frac{3}{4}$. Explain how you found them.

13 A book has 156 pages. Ama has read 89. How many are left? Show your working.



- 14** Find all the factors of 36. List them in order.

- 15** Kofi buys 3 items costing \$2.45, \$1.30 and \$4.99. What is the total? What change from \$10?

- 16** Draw a rectangle with a perimeter of 16 cm. Then draw a different rectangle with the same perimeter. Give the area of each.

SECTION C Error analysis

4 items

Each shows work containing a mistake. Find the FIRST incorrect step, say what the student believed, and give the correct answer.

- 17** Find the first incorrect step. Say what the student believed, then give the correct answer.

$$\begin{aligned} & 1/2 + 1/3 \\ & = (1+1) / (2+3) \\ & = 2/5 \end{aligned}$$



- 18 Find the first incorrect step and correct it.

$$\begin{array}{r} 405 \\ - 267 \\ \hline 262 \end{array}$$

- 19 A student says: 'Multiplying always makes a number bigger.' Give an example that shows this is not always true, and explain.

$$\begin{array}{ll} 6 \times 3 = 18 & (\text{bigger}) \\ 6 \times 1 = 6 & (?) \\ 6 \times 1/2 = 3 & (?) \end{array}$$

- 20 Esi worked out the area of this shape. Find her error and give the correct area.

Rectangle: 8 cm by 3 cm
Esi wrote: $8 + 8 + 3 + 3 = 22$
Esi's answer: area = 22 sq cm

What happens next

Bring this completed sheet to your consultation. A tutor reads it alongside a short conversation with the student and any school work you choose to share, then recommends a level. No placement is ever decided by a score on its own, and no student is placed without a tutor's approval.