Math Foundations III

TESTS MASTERY OF MATH FOUNDATIONS II · 20 ITEMS · 50-60 MINUTES · NO CALCULATOR

This diagnostic checks whether multiplication, division, fraction and decimal understanding is strong enough to begin the arithmetic-to-algebra bridge. The items deliberately separate students who can execute procedures from those who understand why the procedures work.

BEFORE YOU BEGIN

No calculator. Show your working - a correct answer with no method still leaves us guessing.
Leave unfamiliar questions blank rather than guessing.
An adult may read questions aloud but should not explain any mathematics.
Take a break if needed. This is a picture of understanding, not a race.

SECTION A Multiple choice — 10 items

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

01 Which is closest in value to 1?

A) 9/10
B) 10/9
C) 1/9
D) 9/1

02 0.4 x 10 =

A) 4
B) 0.40
C) 40
D) 0.04

03 What is 3/5 as a decimal?

A) 0.6
B) 0.35
C) 3.5
D) 0.53

04 The ratio of red to blue counters is 2:3. There are 12 red. How many blue?

A) 18
B) 13
C) 8
D) 24

05 Which expression means 'five less than a number n'?

A) n - 5
B) 5 - n
C) 5n
D) n / 5

06 What is 25% of 80?

A) 20
B) 25
C) 320
D) 55

07 Which of these is NOT equal to 3/4?

A) 0.34
B) 0.75
C) 75%
D) 6/8

08 -3 + 5 =

A) 2
B) -8
C) 8
D) -2

09 A jacket costs $40 and is reduced by 20%. What is the new price?

A) $32
B) $20
C) $38
D) $8

10 Which is the best estimate for 19.8 x 4.1?

A) 80
B) 8
C) 800
D) 24

SECTION B Student solving

6 items

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

11 Work out 2/3 x 3/4. Show your method and give the answer in simplest form.

12 A recipe for 4 people uses 300g of rice. How much is needed for 10 people? Show your working.

13 Work out 7.2 / 0.8. Show your method.

14 Simplify: 3(x + 4). Then explain what the 3 is doing.

15 The mean of five numbers is 12. Four of them are 8, 10, 14 and 16. Find the fifth.

16 Write 0.375 as a fraction in its simplest form. Show each step.

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, explain the belief behind it, and give the correct answer.

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  3(x + 4)
= 3x + 4
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18 Find the error and give the correct answer.

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  0.5 x 0.4
= 2.0
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19 A student compared two fractions like this. Find the flaw and compare them correctly.

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Which is larger, 2/3 or 3/5 ?
Student: 3 > 2 and 5 > 3, so 3/5 is larger.
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20 Find the first incorrect step and correct it.

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  A price rises from 40 to 50.
Student: the increase is 10,
so the percentage increase is 10%.
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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.