



Pre-Algebra 2

TESTS MASTERY OF PRE-ALGEBRA 1 • 20 ITEMS • 60-75 MINUTES • NO CALCULATOR

This diagnostic checks whether rational-number fluency, proportional reasoning and early symbol use are secure enough to begin formal algebraic thinking. Several items separate students who can execute a procedure from those who know when it applies.

BEFORE YOU BEGIN

No calculator unless a question says otherwise. Show your working - the method tells us more than the answer.
Leave a question blank rather than guessing. A blank tells us it is unfamiliar; a wrong answer tells us what is believed.
Work alone. Nobody should explain the mathematics or suggest a method.
Stop and resume later if you tire. 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 largest?

- A) $\frac{2}{3}$
- B) 0.6
- C) 62%
- D) $\frac{5}{8}$

02 $-8 - (-3) =$

- A) -5
- B) -11
- C) 11
- D) 5

03 Which expression means 'twice a number, decreased by seven'?

- A) $2n - 7$
- B) $7 - 2n$
- C) $2(n - 7)$
- D) $n - 14$



- 04** If $3x = 21$, then $x =$
- A) 7
 - B) 63
 - C) 18
 - D) 24
- 05** A car travels 150 km in 2 hours. At the same rate, how far in 5 hours?
- A) 375 km
 - B) 300 km
 - C) 75 km
 - D) 153 km
- 06** Which is equivalent to $4(2x + 3)$?
- A) $8x + 12$
 - B) $8x + 3$
 - C) $6x + 7$
 - D) $8x + 34$
- 07** What is 15% of 60?
- A) 9
 - B) 15
 - C) 4
 - D) 45
- 08** The point $(3, -2)$ lies in which quadrant?
- A) Fourth
 - B) First
 - C) Second
 - D) Third
- 09** Which of these is NOT a ratio equivalent to 4:6?
- A) 4:8
 - B) 2:3
 - C) 8:12
 - D) 6:9



10 Estimate: 4.9×20.2 is closest to

- A) 100
- B) 10
- C) 1000
- D) 80

SECTION B Student solving

6 items

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

11 Solve for x and show every step: $5x - 4 = 26$

12 A shirt costs \$24 after a 20% discount. What was the original price? Show your reasoning.

13 Work out $-3 \times (4 - 7)$ and explain the order you used.



- 14** Two numbers are in the ratio 3:5 and add to 64. Find both numbers.

- 15** Plot and label these points on axes you draw yourself: A(2,3), B(-1,4), C(0,-2).

- 16** Simplify fully: $6x + 4 - 2x + 9$

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, name the belief behind it, and correct it.

$$\begin{aligned} &4(2x + 3) \\ &= 8x + 3 \end{aligned}$$



- 18 Find and correct the first error.

$$\begin{aligned} & -5 + 3 \times 2 \\ & = -2 \times 2 \\ & = -4 \end{aligned}$$

- 19 A student solved this. Find the first error and give the correct value.

$$\begin{aligned} 2x + 6 &= 20 \\ 2x &= 26 \\ x &= 13 \end{aligned}$$

- 20 Explain what is wrong with this reasoning, and give the correct comparison.

Recipe A: 2 cups sugar to 3 cups flour
Recipe B: 3 cups sugar to 4 cups flour
Student: both add one more flour than sugar,
so they are equally sweet.

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.