Redbridge
Publishing

FREE YEAR 6 SATs MATHS RESOURCE

Find the Gap

40-Question Mixed-Response Diagnostic

A calm, accessible diagnostic using a mixture of written answers and carefully designed five-option questions.

40	original questions
16	five-option diagnostic questions
24	written-response questions
7	skill areas

What makes this diagnostic different

Multiple-choice questions use five plausible choices only when the distractors add diagnostic value. Other questions require a written answer, so pupils cannot work backwards from the options.

Instructions

This diagnostic is not timed.

- Use a pencil.
- Do not use a calculator.
- For questions with choices A-E, choose one answer.
- For written questions, write your answer in the answer box and show working if it helps.
- If a question feels difficult, have a go and move on.
- You may stop after question 20 and finish the rest later.

If reading is a barrier

An adult may read a question aloud exactly as written. They should not explain the maths, simplify the wording, suggest an operation or indicate an answer.

The aim is to identify maths skills that need more teaching. This resource does not produce or predict a SATs scaled score.

Questions 1-2

1 Calculate 6.4 × 100.

Answer

Working

2 Which number is missing?
4,000,000 + 70,000 + + 8 = 4,075,008

- **A** 5
- **B** 500
- **C** 5,000
- **D** 50,000
- **E** 75,000

Questions 3-4

3 Round 349,909 to the nearest 1,000.

Answer _____

Working

4 In the number 3,742,615, what is the value of the digit 7?

- **A** 700
- **B** 7,000
- **C** 70,000
- **D** 700,000
- **E** 7,000,000

Questions 5-6

5 Which number is greatest?

- **A** 0.65
- **B** 0.605
- **C** 0.56
- **D** 0.655
- **E** 0.6055

6 Calculate 5,002 - 687.

Answer

Working

Questions 7-8

7 Complete the calculation.

\+ 3,875 = 10,000

Answer

Working

8 Calculate 18 + 6 × 4.

A 96

B 42

C 48

D 30

E 72

Questions 9-10

9 Calculate 326 × 47.

Answer

Working

10 Calculate 864 ÷ 24.

Answer

Working

Questions 11-12

11 Calculate 42,600 ÷ 100.

- **A** 4.26
- **B** 42.6
- **C** 426
- **D** 4,260
- **E** 42,600

12 Calculate 3,504 ÷ 8.

Answer

Working

Questions 13-14

13 Calculate 2,370 + 896.

Answer

Working

14 Calculate 84 - (12 × 5).

A 360

B 24

C 72

D 420

E 60

Questions 15-16

15 Calculate 3.6 × 7.

Answer

Working

16 Calculate 2/3 + 1/4.

A 3/7

B 5/12

C 11/12

D 7/12

E 5/7

Questions 17-18

17 Calculate 3/5 of 240.

Answer

Working

18 Calculate 15% of 360.

Answer

Working

Questions 19-20

19 Which percentage is equal to 0.35?

- **A** 3.5%
- **B** 35%
- **C** 0.35%
- **D** 350%
- **E** 3,500%

20 Calculate 7/8 - 1/4.
Give your answer in its simplest form.

Answer

Working

Questions 21-22

Optional break: If you completed questions 1-20 today, you can stop here and return to the rest later.

21 Calculate 3/4 of 56.

Answer

Working

22 Which fraction is equal to 0.125?

A 1/5

B 1/8

C 1/4

D 1/10

E 1/20

Questions 23-24

23 25% of a number is 18.
What is the number?

Answer

Working

24 Calculate 2 1/3 + 1 5/6.

A 3 6/9

B 4 1/6

C 3 1/6

D 4 7/9

E 4 5/9

Questions 25-26

25 Which value is greatest?

- **A** 0.4
- **B** 39%
- **C** 3/8
- **D** 0.405
- **E** 40.2%

26 Red and blue counters are in the ratio 3 : 5.
There are 64 counters altogether.
How many counters are blue?

Answer _____

Working

Questions 27-28

27 A recipe uses 300 g of flour for 4 people.
How much flour is needed for 10 people?

Answer

Working

28 5 identical pens cost £3.50.
How much do 8 pens cost?

Answer

Working

Questions 29-30

29 At a club, the ratio of adults to children is 2 : 7.
There are 18 adults.
How many children are there?

- **A** 45
- **B** 63
- **C** 126
- **D** 7
- **E** 72

30 A ribbon is 2.35 m long.
75 cm is added. Then 40 cm is cut off.
What is the new length in metres?

Answer _____

Working

Questions 31-32

31 A rectangle is 8 cm long and 5 cm wide.
What is its perimeter?

- **A** 13 cm
- **B** 26 cm
- **C** 40 cm
- **D** 80 cm
- **E** 16 cm

32 A triangle has a base of 10 cm and a perpendicular height of 6 cm.
What is its area?

Answer

Working

Questions 33-34

33 Convert 2.4 litres to millilitres.

Answer

Working

34 The mean of four numbers is 14.
Three of the numbers are 9, 13 and 16.
What is the fourth number?

Answer

Working

Questions 35-36

35 Museum visitors were:
Monday 14, Tuesday 22, Wednesday 19, Thursday 27.
Find the mean for Monday and Tuesday. Then find how many more visitors came on Thursday than this mean.

Answer

Working

36 A shop sold 100 pens over four days. 30 were sold on Wednesday.
What fraction of the 100 pens was sold on Wednesday?
Choose the answer in its simplest form.

- **A** 3/5
- **B** 3/10
- **C** 30/70
- **D** 1/4
- **E** 30/100

Questions 37-38

37 A school is taking 157 pupils on a trip.
Each coach holds 30 pupils.
What is the smallest number of coaches needed?

- **A** 5
- **B** 5 remainder 7
- **C** 6
- **D** 7
- **E** 30

38 A theatre has 240 tickets.
First, 35% of the tickets are sold. Then 18 more tickets are sold.
How many tickets are left?

Answer _____

Working

Questions 39-40

39 Maya wants to find 3/4 of 28.
Which calculation shows a correct method that uses the denominator first?

- **A** 28 ÷ 4 × 3
- **B** 28 ÷ 3 × 4
- **C** 28 × 4 ÷ 3
- **D** 28 + 3 + 4
- **E** 28 ÷ (3 + 4)

40 A box contains 48 packs of pencils.
Each pack contains 6 pencils.
Then 75 pencils are used.
How many pencils are left?

Answer _____

Working