nexamind EDUCATION

Name _____ Date _____

4.3 Multiplying decimals — worked answers

Multiply decimals by whole numbers, and by other decimals. · 56 questions

A · Fluency — Multiply decimals, small and large.

1 Work out **0.002 × 4**

Answer: 0.008

First multiply without the decimal point: 2 × 4 = 8. There are 3 digits after the point in the question, so there must be 3 in the answer: 0.008.

2 Work out **30 × 0.06**

Answer: 1.8

First multiply without the decimal point: 30 × 6 = 180. There are 2 digits after the point in the question, so there must be 2 in the answer: 1.8.

3 Work out **0.3 × 7**

Answer: 2.1

First multiply without the decimal point: 3 × 7 = 21. There are 1 digit after the point in the question, so there must be 1 in the answer: 2.1.

4 Work out **0.05 × 9**

Answer: 0.45

First multiply without the decimal point: 5 × 9 = 45. There are 2 digits after the point in the question, so there must be 2 in the answer: 0.45.

5 Work out **1.2 × 6**

Answer: 7.2

First multiply without the decimal point: 12 × 6 = 72. There are 1 digit after the point in the question, so there must be 1 in the answer: 7.2.

6 Work out **2.4 × 3**

Answer: 7.2

First multiply without the decimal point: 24 × 3 = 72. There are 1 digit after the point in the question, so there must be 1 in the answer: 7.2.

7 Work out **0.7 × 8**

Answer: 5.6

First multiply without the decimal point: 7 × 8 = 56. There are 1 digit after the point in the question, so there must be 1 in the answer: 5.6.

8 Work out **4.5 × 4**

Answer: 18

First multiply without the decimal point: 45 × 4 = 180. There are 1 digit after the point in the question, so there must be 1 in the answer: 18.

9 Work out **0.25 × 8**

Answer: 2

First multiply without the decimal point: 25 × 8 = 200. There are 2 digits after the point in the question, so there must be 2 in the answer: 2.

10 Work out **1.5 × 12**

Answer: 18

First multiply without the decimal point: 15 × 12 = 180. There are 1 digit after the point in the question, so there must be 1 in the answer: 18.

11 Work out **0.09 × 5**

Answer: 0.45

First multiply without the decimal point: 9 × 5 = 45. There are 2 digits after the point in the question, so there must be 2 in the answer: 0.45.

12 Work out **3.6 × 7**

Answer: 25.2

First multiply without the decimal point: 36 × 7 = 252. There are 1 digit after the point in the question, so there must be 1 in the answer: 25.2.

13 Work out **476 × 3.7**

Answer: 1761.2

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 476 × 3.7 = 1761.2.

14 Work out **234 × 1.5**

Answer: 351

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 234 × 1.5 = 351.

15 Work out **128 × 2.4**

Answer: 307.2

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 128 × 2.4 = 307.2.

16 Work out **305 × 0.6**

Answer: 183

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 305 × 0.6 = 183.

17 Work out **47 × 8.2**

Answer: 385.4

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 47 × 8.2 = 385.4.

18 Work out **156 × 3.5**

Answer: 546

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 156 × 3.5 = 546.

19 Work out **89 × 4.6**

Answer: 409.4

Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 89 × 4.6 = 409.4.

20 Work out **512 × 0.25**

Answer: 128
Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 512 × 0.25 = 128.

21 Work out **63 × 7.4**

Answer: 466.2
Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 63 × 7.4 = 466.2.

22 Work out **204 × 1.25**

Answer: 255
Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 204 × 1.25 = 255.

23 Work out **37 × 9.6**

Answer: 355.2
Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 37 × 9.6 = 355.2.

24 Work out **425 × 0.8**

Answer: 340
Multiply without the decimal point first, then put the point back so the answer has the same number of decimal places as the question: 425 × 0.8 = 340.

B · Reasoning — Placing the point, and when answers shrink.

25 What is the first step when multiplying a decimal by a whole number?

- ☐ Round the decimal
- ☐ Do the multiplication without the decimal point
- ☐ Divide by 10
- ☐ Line up the decimal points

Answer: Do the multiplication without the decimal point
Work out the whole-number multiplication, then put the point back.

26 How do you know where to put the decimal point in the answer?

- ☐ Count the digits in the question
- ☐ The answer has as many decimal places as the question
- ☐ Put it in the middle
- ☐ Round to 2 decimal places

Answer: The answer has as many decimal places as the question
0.002 × 4 has three decimal places in the question, so the answer 0.008 has three too.

27 How many digits are after the decimal point in the answer to 0.002 × 4?

Answer: 3
Three in the question means three in the answer: 0.008.

28 How many digits are after the decimal point in the answer to 30 × 0.06?

Answer: 2
Two in the question means two in the answer: 1.80, written 1.8.

29 Work out 30 × 0.06 and write the answer without an unnecessary zero.

Answer: 1.8

30 × 6 = 180, so 30 × 0.06 = 1.80 = 1.8.

30 Is 1.80 the same as 1.8?

☐ Yes

☐ No

Answer: Yes

A zero at the end of a decimal adds nothing to its value.

31 Given that 476 × 37 = 17 612, work out 476 × 3.7.

Answer: 1761.2

There is one decimal place in the question, so put one in the answer: 1761.2.

32 Given that 476 × 37 = 17 612, work out 4.76 × 3.7.

Answer: 17.612

Three decimal places altogether in the question, so three in the answer: 17.612.

33 Zara says 0.5 × 0.5 = 2.5. Is she right?

☐ Yes

☐ No

Answer: No

5 × 5 = 25, and there are two decimal places in the question, so the answer is 0.25. Multiplying by a number less than 1 makes things **smaller**.

34 Does multiplying by 0.5 make a number bigger?

☐ Yes

☐ No

Answer: No

Multiplying by any number less than 1 makes it smaller — 0.5 of something is half of it.

35 Find the missing number: 0.4 × ? = 2.8

Answer: 7

2.8 ÷ 0.4 = 7.

36 Work out 0.25 × 8 and check it is a quarter of 8.

Answer: 2

0.25 is one quarter, and a quarter of 8 is 2.

C · Challenge — Decimal × decimal, areas and reversing.

37 Work out 1.2 × 1.5.

Answer: 1.8

12 × 15 = 180, and there are two decimal places in the question, so 1.80 = 1.8.

38 Work out 0.4 × 0.7.

Answer: 0.28

4 × 7 = 28, two decimal places, so 0.28. Notice the answer is smaller than both numbers.

39 Work out 2.5 × 2.5.

Answer: 6.25

25 × 25 = 625, two decimal places, so 6.25.

40 Work out $476 \times 3.7 - 476 \times 0.7$.

Answer: 1428

1761.2 − 333.2 = 1428. (Or notice it is 476 × 3 = 1428 straight away.)

41 A rectangle is 4.5 cm by 6 cm. What is its area, in cm²?

Answer: 27

45 × 6 = 270, one decimal place, so 27 cm².

42 A square has side 1.5 m. What is its area, in m²?

Answer: 2.25

15 × 15 = 225, two decimal places, so 2.25 m².

43 Work out $0.002 \times 4 \times 1000$.

Answer: 8

0.002 × 4 = 0.008, and × 1000 moves the digits 3 places left: 8.

44 A number multiplied by 0.6 gives 4.2. What is the number?

Answer: 7

4.2 ÷ 0.6 = 7.

D · Word problems — Costs, masses and areas.

45 A pen costs $1.25. How much do 6 pens cost, in dollars?

Answer: 7.5

125 × 6 = 750, two decimal places, so $7.50.

46 One brick weighs 2.4 kg. What is the mass of 15 bricks, in kg?

Answer: 36

24 × 15 = 360, one decimal place, so 36 kg.

47 A car uses 7.5 litres of fuel per 100 km. How much for 400 km, in litres?

Answer: 30

7.5 × 4 = 30 litres.

48 A ribbon is 0.85 m long. How long are 12 ribbons, in metres?

Answer: 10.2

85 × 12 = 1020, two decimal places, so 10.2 m.

49 A worker earns $12.60 an hour. How much for 8 hours, in dollars?

Answer: 100.8

1260 × 8 = 10 080, two decimal places, so $100.80.

50 A tile is 0.3 m wide. How wide is a row of 25 tiles, in metres?

Answer: 7.5

3 × 25 = 75, one decimal place, so 7.5 m.

51 A bottle holds 1.5 litres. How much is in 24 bottles, in litres?

Answer: 36

15 × 24 = 360, one decimal place, so 36 litres.

52 A phone call costs $0.06 a minute. How much for 30 minutes, in dollars?

Answer: 1.8

6 × 30 = 180, two decimal places, so $1.80.

53 A plank is 3.6 m long. How long are 7 planks laid end to end, in metres?

Answer: 25.2

36 × 7 = 252, one decimal place, so 25.2 m.

54 A dose of medicine is 0.002 litres. How much is 4 doses, in litres?

Answer: 0.008

2 × 4 = 8, three decimal places, so 0.008 litres.

55 A field is 47 m by 8.2 m. What is its area, in m²?

Answer: 385.4

47 × 82 = 3854, one decimal place, so 385.4 m².

56 A shop sells 156 bags of rice at 3.5 kg each. What is the total mass, in kg?

Answer: 546

156 × 35 = 5460, one decimal place, so 546 kg.