Chapter 12: Another Peek Beyond the Point

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Exercise 12.1 — Decimal Multiplication (Page 73)

Q1 Recall that a tenth is 0.1, a hundredth is 0.01, and so on. Find the following products in tenths, hundredths and so on:
(a) 6 × 4 tenths
(b) 7 × 0.3
(c) 9 × 5 hundredths

SOLUTION

(a) 6 × 4 tenths = 24 tenths = 24 × 0.1 = 2.4

(b) 7 × 0.3:
0.3 = 3 tenths, so 7 × 3 tenths = 21 tenths = 2.1

(c) 9 × 5 hundredths:
5 hundredths = 0.05, so 9 × 5 = 45 hundredths = 45 × 0.01 = 0.45

Answer: (a) 2.4 (b) 2.1 (c) 0.45

Q2 Find the products:
(a) 27.34 × 6
(b) 4.23 × 3.7
(c) 0.432 × 0.23

SOLUTION

(a) 27.34 × 6:
Multiply as whole numbers: 2734 × 6 = 16404.
Digits after decimal in factors: 2 + 0 = 2.
27.34 × 6 = 164.04

(b) 4.23 × 3.7:

Multiply as whole numbers: 423 × 37 = 15651.
Digits after decimal: 2 + 1 = 3.
4.23 × 3.7 = 15.651

(c) 0.432 × 0.23:
Multiply as whole numbers: 432 × 23 = 9936.
Digits after decimal: 3 + 2 = 5.
0.432 × 0.23 = 0.09936

Answer: (a) 164.04 (b) 15.651 (c) 0.09936

Q3 Thejus needs 1.65 m of cloth for a shirt. How many metres of cloth are needed for 3 shirts?

SOLUTION

Cloth for 3 shirts = 1.65 × 3
165 × 3 = 495
Digits after decimal: 2 + 0 = 2
1.65 × 3 = 4.95 m

Answer: 4.95 m of cloth is needed for 3 shirts.

Q4 Meenu bought 4 notebooks and 3 erasers. The cost of each notebook was 15.50 and each eraser was 2.75. How much did she spend in all?

SOLUTION

Cost of 4 notebooks = 4 × 15.50 = 62.00
Cost of 3 erasers = 3 × 2.75 = 8.25
Total = 62.00 + 8.25 = 70.25

Answer: Meenu spent 70.25 in all.

Q5 The thickness of a rupee coin is 1.45 mm. What is the total height of the cylinder formed by placing 36 rupee coins one over the other? Write the answer in centimeters.

SOLUTION

Total height = 1.45 × 36 mm
145 × 36 = 5220
Digits after decimal: 2 + 0 = 2
1.45 × 36 = 52.20 mm
Convert to cm: 52.20 mm ÷ 10 = 5.22 cm

Answer: Total height = 5.22 cm

Q6 The price of 1 kg of oranges is 56.50. What is the price of 2.250 kg of oranges? Can we write 56.50 as 56.5 and 2.250 as 2.25 and multiply? Will we get the same product? Why?

SOLUTION

Price = 56.50 × 2.250
5650 × 2250 = 12712500
Digits after decimal: 2 + 3 = 5
56.50 × 2.250 = 127.12500 = 127.125

Writing 56.50 as 56.5 and 2.250 as 2.25:
565 × 225 = 127125
Digits after decimal: 1 + 2 = 3
56.5 × 2.25 = 127.125

Yes, we get the same product because trailing zeroes after the decimal point do not change the value of a number.

Answer: Price of 2.250 kg = 127.125. Yes, the product is the same whether we write 56.50 or 56.5, and 2.250 or 2.25, because trailing zeros do not change a decimal's value.

Q7 Dwarakanath purchases notebooks at a wholesale price of 23.6 per piece and sells each notebook at 30/-. How much profit does he make if he sells 50 books in a week?

SOLUTION

Profit per notebook = 30 − 23.6 = 6.4
Profit on 50 notebooks = 6.4 × 50
64 × 50 = 3200
Digits after decimal: 1 + 0 = 1
6.4 × 50 = 320.0 = 320

Answer: Dwarakanath makes a profit of 320 in a week.

Q8 Given that 18 × 12 = 216, find the products:
(a) 18 × 1.2
(b) 18 × 0.12
(c) 1.8 × 1.2
(d) 0.18 × 0.12
(e) 0.018 × 0.012
(f) 1.8 × 12
In which of the cases above is the product less than 1?

SOLUTION

Base fact: 18 × 12 = 216

(a) 18 × 1.2: total 1 decimal digit → 21.6
(b) 18 × 0.12: total 2 decimal digits → 2.16
(c) 1.8 × 1.2: total 2 decimal digits → 2.16
(d) 0.18 × 0.12: total 4 decimal digits → 0.0216
(e) 0.018 × 0.012: total 6 decimal digits → 0.000216
(f) 1.8 × 12: total 1 decimal digit → 21.6

Products less than 1: (d) 0.0216 and (e) 0.000216

Answer: (a) 21.6 (b) 2.16 (c) 2.16 (d) 0.0216 (e) 0.000216 (f) 21.6. Cases (d) and (e) have products less than 1.

Q9 In which of the following multiplications is the product less than 1? Can you find the answer without actually doing the multiplications?
(a) 7 × 0.6
(b) 0.7 × 0.6
(c) 0.7 × 6
(d) 0.07 × 0.06

SOLUTION

A product of two numbers is less than 1 when both numbers are between 0 and 1.

(a) 7 × 0.6: 7 > 1, so product = 4.2 > 1. NOT less than 1.
(b) 0.7 × 0.6: both between 0 and 1 → product = 0.42 < 1. YES.
(c) 0.7 × 6: one factor > 1 → product = 4.2 > 1. NOT less than 1.
(d) 0.07 × 0.06: both between 0 and 1 → product = 0.0042 < 1. YES.

Answer: (b) 0.7 × 0.6 = 0.42 and (d) 0.07 × 0.06 = 0.0042 are less than 1.

Q10 Multiply the following numbers by 10, 100, and 1000 to complete the table: 5.7, 23.02, 0.92, 0.306, 24.67

SOLUTION

To multiply by 10, 100, 1000 move the decimal point right by 1, 2, 3 places.

5.7: ×10 = 57, ×100 = 570, ×1000 = 5700
23.02: ×10 = 230.2, ×100 = 2302, ×1000 = 23020
0.92: ×10 = 9.2, ×100 = 92, ×1000 = 920
0.306: ×10 = 3.06, ×100 = 30.6, ×1000 = 306
24.67: ×10 = 246.7, ×100 = 2467, ×1000 = 24670

Answer: 5.7→57/570/5700; 23.02→230.2/2302/23020; 0.92→9.2/92/920; 0.306→3.06/30.6/306; 24.67→246.7/2467/24670

Exercise 12.2 — Decimal Division — Integer Divisor (Page 83)

Q1 Find the quotient by converting the denominator into 1, 10, 100, or 1000 and verify the solution by the long division method:
(a) 18/5
(b) 415/4
(c) 1217/2
(d) 4827/8

SOLUTION

(a) 18/5: multiply numerator and denominator by 2 → 36/10 = 3.6
Verify by long division: 5) 18 → 3 remainder 3 → 30 tenths ÷ 5 = 6 tenths → quotient 3.6 ✓

(b) 415/4: 4 × 25 = 100, so multiply by 25 → 10375/100 = 103.75
Verify: 4) 415 → 103 remainder 3 → 30 tenths ÷ 4 = 7 tenths rem 2 → 20 hundredths ÷ 4 = 5 → 103.75 ✓

(c) 1217/2: multiply by 5 → 6085/10 = 608.5
Verify: 2) 1217 → 608 remainder 1 → 10 tenths ÷ 2 = 5 → 608.5 ✓

(d) 4827/8: 8 × 125 = 1000, so multiply by 125 → 603375/1000 = 603.375
Verify: 8) 4827 → 603 remainder 3 → 30 tenths ÷ 8 = 3 rem 6 → 60 hundredths ÷ 8 = 7 rem 4 → 40 thousandths ÷ 8 = 5 → 603.375 ✓

Answer: (a) 3.6 (b) 103.75 (c) 608.5 (d) 603.375

Q2 Choose the correct answer:
(a) 1526/4 =
(i) 38.15 (ii) 380.15 (iii) 381.5 (iv) 381.05
(b) 3567/8 =
(i) 4458.75 (ii) 44.5875 (iii) 445.875 (iv) 4458.75

SOLUTION

(a) 1526 ÷ 4:
4) 1526 → 381 remainder 2 → 20 tenths ÷ 4 = 5 → quotient = 381.5
Correct answer: (iii) 381.5

(b) 3567 ÷ 8:
8) 3567 → 445 remainder 7 → 70 tenths ÷ 8 = 8 rem 6 → 60 hundredths ÷ 8 = 7 rem 4 → 40 thousandths ÷ 8 = 5 → quotient = 445.875

Correct answer: (iii) 445.875

Answer: (a) (iii) 381.5 (b) (iii) 445.875

Q3 What is the quotient?

(a) 132 ÷ 4

(b) 13.2 ÷ 4

(c) 1.32 ÷ 4

(d) 0.132 ÷ 4

SOLUTION

Base: 132 ÷ 4 = 33.

Each step the dividend is divided by 10, so the quotient is also divided by 10.

(a) 132 ÷ 4 = 33

(b) 13.2 ÷ 4 = 3.3

(c) 1.32 ÷ 4 = 0.33

(d) 0.132 ÷ 4 = 0.033

Answer: (a) 33 (b) 3.3 (c) 0.33 (d) 0.033

Q4 What is the quotient?

(a) 126 ÷ 8

(b) 12.6 ÷ 8

(c) 1.26 ÷ 8

(d) 0.126 ÷ 8

(e) 0.0126 ÷ 8

SOLUTION

Base: 126 ÷ 8 = 15.75.

Each step the dividend is divided by 10, so the quotient is also divided by 10.

(a) 126 ÷ 8 = 15.75

8) 126 → 15 rem 6 → 60 tenths ÷ 8 = 7 rem 4 → 40 hundredths ÷ 8 = 5 → 15.75

(b) 12.6 ÷ 8 = 1.575

(c) 1.26 ÷ 8 = 0.1575

(d) 0.126 ÷ 8 = 0.01575

(e) 0.0126 ÷ 8 = 0.001575

Answer: (a) 15.75 (b) 1.575 (c) 0.1575 (d) 0.01575 (e) 0.001575

Exercise 12.3 — Decimal Division — Decimal Divisor (Page 86)

Q1 Express the following fractions in decimal form:
(a) 2/5
(b) 13/4
(c) 4/50
(d) 5/8

SOLUTION

(a) 2/5: multiply by 2/2 → 4/10 = 0.4

(b) 13/4: multiply by 25/25 → 325/100 = 3.25

(c) 4/50: multiply by 2/2 → 8/100 = 0.08

(d) 5/8: multiply by 125/125 → 625/1000 = 0.625

Answer: (a) 0.4 (b) 3.25 (c) 0.08 (d) 0.625

Q2 Find the quotients:
(a) 24.86 ÷ 1.2
(b) 5.728 ÷ 1.52

SOLUTION

(a) 24.86 ÷ 1.2:
Multiply both by 10: 248.6 ÷ 12 = 2486 ÷ 120 = 1243/60
1243/60 = 20.716... (non-terminating, repeating)
24.86 ÷ 1.2 ≈ 20.72 (to 2 decimal places)

(b) 5.728 ÷ 1.52:
Multiply both by 100: 572.8 ÷ 152 = 5728 ÷ 1520 = 358/95
358/95 = 3.768... (non-terminating, repeating)
5.728 ÷ 1.52 ≈ 3.77 (to 2 decimal places)

Answer: (a) 24.86 ÷ 1.2 ≈ 20.72 (b) 5.728 ÷ 1.52 ≈ 3.77

Q3 Evaluate the following using the information 156 × 12 = 1872:
(a) 15.6 × 1.2
(b) 187.2 ÷ 1.2
(c) 18.72 ÷ 15.6
(d) 0.156 × 0.12

SOLUTION

Base: 156 × 12 = 1872

(a) 15.6 × 1.2: 1 + 1 = 2 decimal places → 1872 ÷ 100 = 18.72

(b) 187.2 ÷ 1.2: multiply both by 10 → 1872 ÷ 12 = 156

(c) 18.72 ÷ 15.6: multiply both by 10 → 187.2 ÷ 156 = 1872 ÷ 1560 = 156/130 = 1.2

(d) 0.156 × 0.12: 3 + 2 = 5 decimal places → 1872 ÷ 100000 = 0.01872

Answer: (a) 18.72 (b) 156 (c) 1.2 (d) 0.01872

Q4 Evaluate the following:
(a) 25 ÷ ____ = 0.025
(b) 25 ÷ ____ = 250
(c) 25 ÷ ____ = 2.5
(d) 25 ÷ 10 = 25 × ____
(e) 25 ÷ 0.10 = 25 × ____
(f) 25 ÷ 0.01 = 25 × ____

SOLUTION

(a) 25 ÷ ___ = 0.025 → divisor = 25 ÷ 0.025 = 1000
(b) 25 ÷ ___ = 250 → divisor = 25 ÷ 250 = 0.1
(c) 25 ÷ ___ = 2.5 → divisor = 25 ÷ 2.5 = 10
(d) 25 ÷ 10 = 25 × 1/10 → blank = 0.1
(e) 25 ÷ 0.10 = 25 × 10 → blank = 10 (reciprocal of 0.10)
(f) 25 ÷ 0.01 = 25 × 100 → blank = 100 (reciprocal of 0.01)

Answer: (a) 1000 (b) 0.1 (c) 10 (d) 0.1 (e) 10 (f) 100

Q5 Find the quotient:
(a) 2.46 ÷ 1.5
(b) 2.46 ÷ 0.15
(c) 2.46 ÷ 0.015
Is the quotient obtained in 24.6 ÷ 1.5 the same as the quotient obtained in 2.46 ÷ 0.15?

SOLUTION

(a) 2.46 ÷ 1.5: multiply both by 10 → 24.6 ÷ 15 = 246 ÷ 150 = 1.64
(b) 2.46 ÷ 0.15: multiply both by 100 → 246 ÷ 15 = 16.4
(c) 2.46 ÷ 0.015: multiply both by 1000 → 2460 ÷ 15 = 164

24.6 ÷ 1.5: multiply both by 10 → 246 ÷ 15 = 16.4
2.46 ÷ 0.15 = 16.4
Yes, both give 16.4 — the ratio is unchanged when dividend and divisor are multiplied by the same number.

Answer: (a) 1.64 (b) 16.4 (c) 164. Yes, 24.6 ÷ 1.5 = 2.46 ÷ 0.15 = 16.4.

Q6 A 4 m long wooden block has to be cut into 5 pieces of equal length. What is the length of each piece?

SOLUTION

Length of each piece = 4 ÷ 5
4/5 = 8/10 = 0.8 m

Answer: Each piece is 0.8 m long.

Q7 If the perimeter of a regular polygon with 12 sides is 208.8 cm, what is the length of its side?

SOLUTION

Length of each side = 208.8 ÷ 12
2088 ÷ 120 = 17.4 cm
Verify: 17.4 × 12 = 208.8 ✓

Answer: Each side is 17.4 cm long.

Q8 3 litres of watermelon juice is shared among 8 friends equally. How much watermelon juice will each get? Express the quantity of juice in millilitres.

SOLUTION

Each friend gets = 3 ÷ 8 litres
3/8: multiply by 125/125 → 375/1000 = 0.375 litres
Convert to ml: 0.375 × 1000 = 375 ml

Answer: Each friend gets 0.375 litres = 375 ml of watermelon juice.

Q9 A car covers 234.45 km using 12.6 litres of petrol. What is the distance travelled per litre?

SOLUTION

Distance per litre = 234.45 ÷ 12.6
Multiply both by 10: 2344.5 ÷ 126 = 23445 ÷ 1260 = 521/28
521 ÷ 28: 28 × 18 = 504, remainder 17 → 170 tenths ÷ 28 = 6 rem 2 → non-terminating
234.45 ÷ 12.6 ≈ 18.61 km per litre

Answer: Distance per litre ≈ 18.61 km

Q10 13.5 kg of flour (aata) was distributed equally among 15 students. How much flour did each student receive?

SOLUTION

Each student gets = 13.5 ÷ 15
13.5/15 = 135/150 = 9/10 = 0.9 kg

Answer: Each student received 0.9 kg of flour.

Exercise 12.4 — Look Before You Leap! — Mixed Applications (Page 93)

Q1 A 210 gram packet of peanut chikki costs 70.5, while a 110 gram packet of potato chips costs 33.25. Which is cheaper?

SOLUTION

Price per gram of peanut chikki = 70.5 ÷ 210
= 705/2100 = 47/140 ≈ 0.3357 per gram

Price per gram of potato chips = 33.25 ÷ 110
= 3325/11000 = 133/440 ≈ 0.3023 per gram

0.3023 < 0.3357, so potato chips are cheaper per gram.

Answer: Potato chips (≈ 0.30/g) are cheaper than peanut chikki (≈ 0.34/g).

Q2 Write the decimal number at the arrow mark:
Number line 1: from 3.1 to 3.2, arrow at the 6th division (the tick just right of the tall midpoint tick).
Number line 2: from 2.15 to 2.17, arrow at the 6th division (the tick just right of the tall midpoint tick).

SOLUTION

Number line 1: spans from 3.1 to 3.2 (range = 0.1) with 10 equal divisions.
Each division = 0.1 ÷ 10 = 0.01
The arrow sits on the tick one division to the right of the tall midpoint tick — the 6th division from 3.1: 3.1 + 6 × 0.01 = 3.16

Number line 2: spans from 2.15 to 2.17 (range = 0.02) with 10 equal divisions.
Each division = 0.02 ÷ 10 = 0.002
The arrow sits on the 6th division from 2.15: 2.15 + 6 × 0.002 = 2.162 ≈ 2.16

Answer: Number line 1: 3.16 Number line 2: 2.162 (≈ 2.16)

Q3 Shyamala bought 3 kg bananas at 30/- per kg. She counted 35 bananas in all. She sells each banana for 5/-. How much profit does she make selling all the bananas?

SOLUTION

Cost price = 3 × 30 = 90
Selling price = 35 × 5 = 175
Profit = 175 − 90 = 85

Answer: Shyamala makes a profit of 85.

Q4 A teacher placed textbooks that are 2.5 cm thick on a bookshelf. The teacher wanted to place 80 textbooks on the shelf. The bookshelf is 160 cm long. How many books could be placed on the shelf? Was there any space left? If yes, how much?

SOLUTION

Number of books that fit = 160 ÷ 2.5
= 1600 ÷ 25 = 64 books

The teacher wanted to place 80 books, but only 64 fit.
Space used by 64 books = 64 × 2.5 = 160 cm
Space left = 160 − 160 = 0 cm (the shelf is exactly filled by 64 books)

Answer: Only 64 books can be placed on the shelf. There is no space left (64 books fill the shelf exactly).

Q5 Fill in the following blanks appropriately:
5.5 km = ___ m, 35 cm = ___ m, 14.5 cm = ___ mm, 68 g = ___ kg, 9.02 m = ___ mm, 125.5 ml = ___ l

SOLUTION

1 km = 1000 m: 5.5 × 1000 = 5500 m
1 m = 100 cm: 35 ÷ 100 = 0.35 m
1 cm = 10 mm: 14.5 × 10 = 145 mm
1 kg = 1000 g: 68 ÷ 1000 = 0.068 kg
1 m = 1000 mm: 9.02 × 1000 = 9020 mm
1 l = 1000 ml: 125.5 ÷ 1000 = 0.1255 l

Answer: 5500 m; 0.35 m; 145 mm; 0.068 kg; 9020 mm; 0.1255 l

Q6 The following problem was set by Sridharacharya in his book Patiganita: "6¼ is divided by 2½, and 60¼ is divided by 3½. Tell the quotients separately." Can you try to solve it by converting the fractions into decimals?

SOLUTION

6¼ = 6.25, 2½ = 2.5
6.25 ÷ 2.5: multiply both by 10 → 62.5 ÷ 25 = 2.5

60¼ = 60.25, 3½ = 3.5
60.25 ÷ 3.5: multiply both by 10 → 602.5 ÷ 35 = 6025 ÷ 350 = 241/14
241 ÷ 14 = 17 remainder 3 → 30 tenths ÷ 14 = 2 rem 2 → 20 hundredths ÷ 14 = 1 rem 6...
= 17.2142857... (repeating)
≈ 17.21 (to 2 decimal places)

Answer: 6¼ ÷ 2½ = 2.5; 60¼ ÷ 3½ ≈ 17.21 (= 241/14, non-terminating repeating decimal)

Q7 Fill the boxes in at least 2 different ways:
(a) ___ × ___ = 2.4
(b) ___ × ___ = 14.5

SOLUTION

(a) ___ × ___ = 2.4:
Way 1: 12 × 0.2 = 2.4
Way 2: 4 × 0.6 = 2.4
Way 3: 2.4 × 1 = 2.4

(b) ___ × ___ = 14.5:
Way 1: 29 × 0.5 = 14.5
Way 2: 5.8 × 2.5 = 14.5
Way 3: 14.5 × 1 = 14.5

Answer: (a) e.g. 12 × 0.2 or 4 × 0.6 (b) e.g. 29 × 0.5 or 5.8 × 2.5

Q8 Find the following quotients given that 756 ÷ 36 = 21:
(a) 75.6 ÷ 3.6
(b) 7.56 ÷ 0.36
(c) 756 ÷ 0.36
(d) 75.6 ÷ 360
(e) 7560 ÷ 3.6
(f) 7.56 ÷ 0.36

SOLUTION

Base: 756 ÷ 36 = 21.

When dividend and divisor are multiplied or divided by the same number, the quotient is unchanged.

(a) 75.6 ÷ 3.6 = 756 ÷ 36 = 21
(b) 7.56 ÷ 0.36 = 756 ÷ 36 = 21
(c) 756 ÷ 0.36 = 75600 ÷ 36 = 756 ÷ 36 × 100 = 21 × 100 = 2100
(d) 75.6 ÷ 360 = 756 ÷ 3600 = 21 ÷ 100 = 0.21
(e) 7560 ÷ 3.6 = 75600 ÷ 36 = 21 × 100 = 2100
(f) 7.56 ÷ 0.36 = 756 ÷ 36 = 21

Answer: (a) 21 (b) 21 (c) 2100 (d) 0.21 (e) 2100 (f) 21

Q9 Find the missing cells if each cell represents a ÷ b.

b \ a →	1517	151.7	15.17	1.517	15170
37 :	41	___	___	___	___
3.7:	___	41	4.1	___	___
0.37:	___	___	41	___	___
0.037:	___	4100	___	41	___
370:	___	___	___	___	41

SOLUTION

Base: 1517 ÷ 37 = 41. All values in the table are 41 scaled by powers of 10.

b=37: 1517÷37=41, 151.7÷37=4.1, 15.17÷37=0.41, 1.517÷37=0.041, 15170÷37=410

b=3.7: 1517÷3.7=410, 151.7÷3.7=41, 15.17÷3.7=4.1, 1.517÷3.7=0.41, 15170÷3.7=4100

b=0.37: 1517÷0.37=4100, 151.7÷0.37=410, 15.17÷0.37=41, 1.517÷0.37=4.1, 15170÷0.37=41000

b=0.037: 1517÷0.037=41000, 151.7÷0.037=4100, 15.17÷0.037=410, 1.517÷0.037=41, 15170÷0.037=410000
b=370: 1517÷370=4.1, 151.7÷370=0.41, 15.17÷370=0.041, 1.517÷370=0.0041, 15170÷370=41

Answer: b=37: 41/4.1/0.41/0.041/410 | b=3.7: 410/41/4.1/0.41/4100 | b=0.37: 4100/410/41/4.1/41000 | b=0.037: 41000/4100/410/41/410000 | b=370: 4.1/0.41/0.041/0.0041/41

Q10 Using the digits 2, 4, 5, 8, and 0 fill the boxes __ __ . __ × __ . __ to get the:
(a) maximum product
(b) minimum product
(c) product greater than 150
(d) product nearest to 100
(e) product nearest to 5

SOLUTION

The form is: (two-digit).(one-digit) × (one-digit).(one-digit), using digits 2,4,5,8,0 each once.

(a) Maximum: place largest digits in the highest place values.
54.0 × 8.2 = 442.8 (largest product)

(b) Minimum product (greater than 0): place 0 in the tens position.
45.8 × 0.2 = 9.16 (smallest non-zero product)

(c) Product greater than 150: e.g.
28.0 × 5.4 = 151.2 (just above 150)

(d) Product nearest to 100:
20.5 × 4.8 = 98.4 (nearest to 100)

(e) Product nearest to 5:
Note minimum is already 9.16, so nearest to 5 is also 45.8 × 0.2 = 9.16
(With these 5 digits, no arrangement gives a product as small as 5.)

Answer: (a) 54.0 × 8.2 = 442.8 (b) 45.8 × 0.2 = 9.16 (c) e.g. 28.0 × 5.4 = 151.2 (d) 20.5 × 4.8 = 98.4 (e) 45.8 × 0.2 = 9.16 (closest possible to 5)

Q11 Sort the following expressions in increasing order:
(a) 245.05 × 0.942368
(b) 245.05 × 7.9682
(c) 245.05 ÷ 7.9682
(d) 245.05 ÷ 0.942368
(e) 245.05
(f) 7.9682

SOLUTION

Use the rule: multiplying/dividing by a number > 1 increases/decreases the value relative to 245.05.

(f) 7.9682 ≈ 7.97 (smallest — it is just the number 7.9682 itself)
(c) 245.05 ÷ 7.9682 ≈ 30.75 (dividing 245.05 by something > 1 gives less than 245.05)
(a) 245.05 × 0.942368 ≈ 230.93 (multiplying by < 1 gives less than 245.05)
(e) 245.05 (the number itself)
(d) 245.05 ÷ 0.942368 ≈ 260.04 (dividing by < 1 gives more than 245.05)
(b) 245.05 × 7.9682 ≈ 1952.61 (multiplying by > 1 gives largest)

Increasing order: (f) < (c) < (a) < (e) < (d) < (b)

Answer: Increasing order: (f) 7.9682 < (c) 245.05 ÷ 7.9682 < (a) 245.05 × 0.942368 < (e) 245.05 < (d) 245.05 ÷ 0.942368 < (b) 245.05 × 7.9682