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MATHEMATICS

Stage 4

Number and Algebra, Fractions, Decimals and Percentages

Decimals

Teacher: Chi Binh Le

Exam Equivalent Time: 178.5 minutes (based on allocation ~1.25 min/mark)

norWEST

CHRISTIAN COLLEGE

STRENGTH OF PURPOSE

Questions

1. **C** Decimals (232783) **Core**

Which number is greater than 0.05?

- A. 0.2
- B. 0.007
- C. 0.04
- D. 0.0076

2. **C** Decimals (233851) **Core**

4 groups of backpackers picked blueberries over two hours.

The weight of the blueberries collected (in kg) by the groups in each hour is shown in the table below.

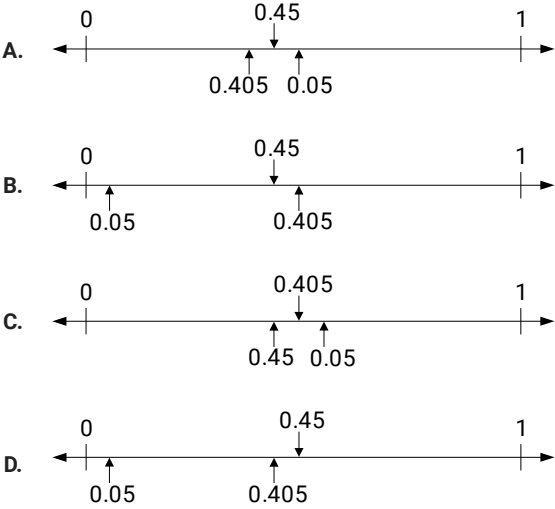
	Group 1	Group 2	Group 3	Group 4
1st Hour	2.57	2.89	2.5	2.87
2nd Hour	2.35	2.06	2.92	2.53

Which group picked the greatest mass over the two hours?

- A. Group 1
- B. Group 2
- C. Group 3
- D. Group 4

3. **B** Decimals (236026) **Core**

Which number line correctly shows the positions of 0.45, 0.05 and 0.405.?



4. **B+** Decimals (234402) **Core**

Which of the following statements is correct for the number sentence 202×0.1 ?

- A. 202×0.1 is less than 202
- B. 202×0.1 is equal to 202
- C. 202×0.1 is greater than 202
- D. None of the above

5. **B+** Decimals (234415) **Core**

$9.634 \div 100 =$

- A. 96.34
- B. 9.634
- C. 0.9634
- D. 0.09634

6. **B+** Decimals (234411) **Core**

$2.83 \times 10 =$

- A. 2830
- B. 283
- C. 28.3
- D. 0.283

7. B+ Decimals (232385) Core

Which of these numbers has a 3 in the thousandths place?

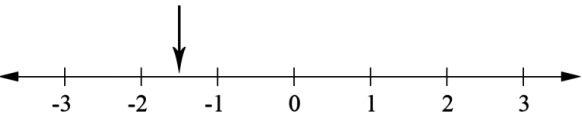
- A. 0.3244
- B. 2.8309
- C. 7.8231
- D. 23 082.8915

8. A Decimals (234388) Core

What is the answer to $8.8 \div 0.4$?

- A. 0.022
- B. 0.22
- C. 2.2
- D. 22

9. D Decimals (232357) Core



The arrow points to a position on the number line.
Giving your answer as a decimal, what number is at this position? (1 mark)

10. D Decimals (233369) Core

Round 123.4567 to 2 decimal places. (1 mark)

11. C Decimals (233372) Core

Round 45.796 to 2 decimal places. (1 mark)

12. C Decimals (234409) Core

$22.5 \div \boxed{} = 2.25$ (1 mark)

13. C Decimals (236015) Core

Shannon is buying materials to make a bookcase.
She rounds each price in the table below to the nearest dollar to estimate the total cost of the materials.

Materials	
Item	Cost
hammer	\$5.65
glue	\$3.95
wood	\$11.55
nails	\$1.60
stain	\$3.85

How much is Shannon's estimate? (2 marks)

14. C Decimals (232370) Core

Richard is a runner.
The length of his last 4 half marathon distances are recorded in the table below.

Half marathon	Distance (km)
1	21.1
2	20.35
3	20.295
4	22.095

Which half marathon had the shortest distance? (1 mark)

15. C Decimals (232809) Core

Arrange these decimal numbers in ascending order. (2 marks)
4.08, 4.83, 4.38, 4.88, 4.80

16. C Decimals (233352) Core

Would 3.4 be approximately equal to 3 or 4 when rounded to the nearest whole number? (1 mark)

17. C Decimals (233589) Core

Arrange these decimals and fractions in descending order. (2 marks)

$\frac{1}{4}, 0.21, \frac{4}{5}, 0.205, \frac{1}{3}$

18. C Decimals (233877) Core

What is the difference between 14.253 and 9.121? (1 mark)

19. C Decimals (234383) Core

What number will make this number sentence true? (2 marks)

$2.48 + 3.72 = \boxed{} + 2.50$

20. C Decimals (233628) Core

Evaluate $3.2 + 14.85 + 0.126$. (2 marks)

21. C Decimals (233375) Core

Round 139.98 to 1 decimal place. (1 mark)

22. C Decimals (232813) Core

Arrange these decimal numbers in descending order. (2 marks)

$10.045, 10.04, 10.450, 10.145, 10.405$

23. C Decimals (232788) Core

The weather bureau publishes the weekday maximum temperatures in the table below.

Weekday	MON	TUE	WED	THU	FRI
Max Temp	22.7°	21.8°	20.3°	26.4°	28.7°

How much warmer was it on Thursday than on Monday? (2 marks)

24. C Decimals (235934) Core

Calculate

a. 0.24×10 (1 mark)

b. 13.4×100 (1 mark)

c. 242.52×1000 (1 mark)

25. C Decimals (235942) Core

Calculate

a. $234.2 \div 10$ (1 mark)

b. $1.237 \div 100$ (1 mark)

c. $4536.2 \div 1000$ (1 mark)

26. C Decimals (233311) Core

Would 2.47 be approximately to 2.4 or 2.5 when rounded to 1 decimal place? (1 mark)

27. C Decimals (233392) Core

Convert $\frac{7}{10}$ to a decimal. (1 mark)

28. C Decimals (233609) Core

Arrange these decimals and fractions in ascending order. (2 marks)

$\frac{9}{10}, 0.09, \frac{91}{100}, 0.099, \frac{10}{11}$

29. C Decimals (234358) Core

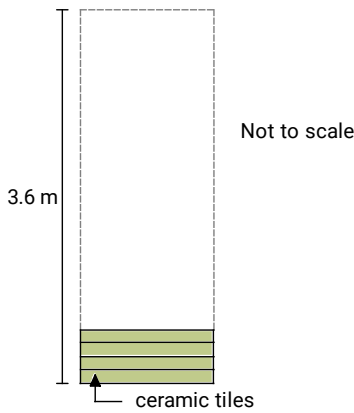
Evaluate $25.1 - 18.5$. (1 mark)

30. C Decimals (234363) Core

Evaluate $28.24 - 15.8$. (1 mark)

31. **C** Decimals (236005) **Core**

Gladys is tiling a wall that is 3.6 metres high.
She is using ceramic tiles that are 0.06 metres wide.
There are no gaps between the tiles.



How many ceramic tiles does Gladys need to buy? (2 marks)

32. **C** Decimals (234361) **Core**

Evaluate $123.9 - 80.05$. (1 mark)

33. **C** Decimals (233862) **Core**

The table below compares the approximate populations of two countries.

Country	Approximate population (millions)
Cuba	11.475
Benin	11.096

Approximately how many more people live in Cuba than in Benin? (2 marks)

34. **C** Decimals (233401) **Core**

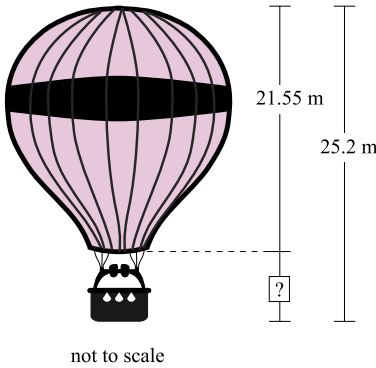
Convert $1\frac{1}{2}$ to a decimal. (1 mark)

35. **C** Decimals (233390) **Core**

Convert $\frac{45}{100}$ to a decimal. (1 mark)

36. **C** Decimals (232798) **Core**

A hot air balloon is 25.2 metres high.
The length of the balloon section is 21.55 metres.



What is the height of the basket section? (2 marks)

37. **B** Decimals (233870) **Core**

Verne sells produce at the local market.
By 11:30am on Saturday morning he has sales of \$31.25, \$15.67 and \$28.30.
a. What was the total of Verne's sales by 11:30am? (1 mark)
b. Verne wanted to sell \$100 in produce this week. How much more does he have to sell to make this goal? (1 mark)

38. **B** Decimals (232780) **Core**

A flea can jump up to 300 times its body length.
The flea's body length is 1.5 mm.
What is the maximum distance the flea can jump? (2 marks)

39. B Decimals (233379) Core

Min was competing in the long jump at the athletics carnival.
The lengths of her jumps are listed in the table below.

Long Jump Distances		
4.325 m	4.589 m	4.283 m

What was her longest jump, rounded to 2 decimal places. *(2 marks)*

40. B Decimals (233395) Core

Convert $\frac{12}{1000}$ to a decimal. *(1 mark)*

41. B Decimals (233434) Core

Express $\frac{1}{3}$ as a recurring decimal. *(1 mark)*

42. B Decimals (236594) Core

Evaluate the following:

- a. 1.2×8 *(1 mark)*
- b. 0.8×0.7 *(1 mark)*
- c. 2.5×0.04 *(1 mark)*
- d. 0.05×1.6 *(1 mark)*

43. B Decimals (234367) Core

The temperature at Mawson in Antarctica was recorded as -13.6°C at 11:30 pm on 22/10/2023.
At 4:30 am on 23/10/23 the temperature had fallen to -15.4°C .
What was the change in temperature from 11:30 pm to 4:30 am? *(2 marks)*

44. B Decimals (233412) Core

Convert $2\frac{3}{4}$ to a decimal. *(1 mark)*

45. B Decimals (233385) Core

Use a calculator to find $29.50072 \div 8$.
Write your answer and then round to 1 decimal place. *(2 marks)*

46. B Decimals (232816) Core

John measured the water depth at the end of his jetty for five days in a row.
The measurements are summarised in the table below.

	Monday	Tuesday	Wednesday	Thursday	Friday
Water Level	1.24 m	1.07 m	1.42 m	1.15 m	1.38 m

- a. On which day was the water level the highest? *(1 mark)*
- b. On which day was the water level the lowest? *(1 mark)*
- c. On which day was the median (middle) water level measurement? *(1 mark)*
- d. What is the difference between the highest and lowest water levels? *(2 marks)*

47. B+ Decimals (232382) Core

A high school has 1000 students enrolled.
37 of the 1000 students have the first name John.
Write the fraction of students with first name John as a decimal. *(1 mark)*

48. B+ Decimals (233422) Core

Write **0.85** as a fraction in simplest form. *(1 mark)*

49. B+ Decimals (233426) Core

Write **1.375** as a mixed number in simplest form. *(1 mark)*

50. B+ Decimals (233484) Core

Express $\frac{2}{11}$ as a recurring decimal. *(1 mark)*

51. B+ Decimals (233519) Core

Express $\frac{5}{12}$ as a recurring decimal. *(1 mark)*

52. B+ Decimals (233504) Core

Express $\frac{4}{9}$ as a recurring decimal. *(1 mark)*

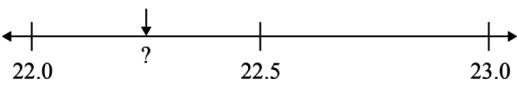
53. B+ Decimals (233430) Core

Write **2.045** as a mixed number in simplest form. *(1 mark)*

54. B+ Decimals (233415) Core

Convert $\frac{5}{8}$ to a decimal. (1 mark)

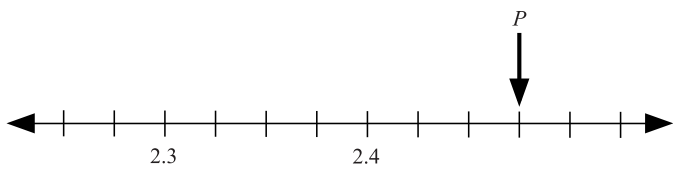
55. B+ Decimals (232537) Core



Which decimal number is the arrow pointing to on this number line? (1 mark)

56. B+ Decimals (232379) Core

What is the value of *P*? (2 marks)



57. B+ Decimals (232546) Core

The average cost of manufacturing a car tyre is calculated in dollars, and shown below.



What is the average cost rounded to the nearest 5 cents? (1 mark)

58. B+ Decimals (233399) Core

Convert $\frac{8}{25}$ to a decimal. (1 mark)

59. B+ Decimals (236600) Core

Evaluate the following:

- a. $1.2 \div 4$ (1 mark)
- b. $3.2 \div 0.8$ (1 mark)
- c. $42 \div 0.6$ (1 mark)
- d. $1.44 \div 1.2$ (1 mark)

60. B+ Decimals (236662) Core

Use the order of operations to evaluate:

$2.389 + 4.12 \times 20 - 5.604$ (2 marks)

61. B+ Decimals (236651) Core

Evaluate the following:

- a. $416.48 \div 200$ (1 mark)
- b. $20.645 \div 50$ (1 mark)
- c. $829.715 \div 500$ (2 mark)
- d. $0.724 \div 400$ (2 marks)

62. B+ Decimals (236034) Core

Manou was cooking a defrosted chicken in his oven and checking its temperature every 7 minutes.

The first temperature taken was -8.2°C .

The second temperature was 4.2°C .

The third measurement showed that the temperature had increased one and a half times the previous increase.

What was the third temperature? (2 marks)

63. B+ Decimals (233397) Core

Convert $\frac{1}{20}$ to a decimal. (1 mark)

64. A Decimals (234421) Core

Onions cost \$3 per kilogram.

Peter buys 3.35 kilograms of onions.

How much does Peter pay for the onions? (2 marks)

65. A Decimals (236673) Core

Maureen worked 10 hours last week and was paid \$245.80. Jessica worked 9 hours and received \$221.85.

Who was paid the highest hourly rate? Justify your answer using calculations. (2 marks)

66. **A** Decimals (236607) **Core**

Evaluate the following, using order of operations:

- $84 \div 1.2 \times 0.3$ (1 mark)
- $20 \times 2.5 \div 0.1$ (1 mark)
- $1.8 \div 0.2 \times 0.6$ (2 mark)
- $0.8 \times 0.03 \div 1.2$ (2 marks)

67. **A** Decimals (236043) **Core**

Brett has three 6-litre cans of paint.

He divides the paint up equally between his 24 art students.

How much paint will each student receive?

Write your answer as a decimal. (2 marks)

68. **A** Decimals (234393) **Core**

$$3.85 \div 3.5 = \boxed{} \quad (2 \text{ marks})$$

69. **A+** Decimals (234435) **Core**

Bert, Gary and Miles are weighing themselves.

Bert weighs 48.65 kilograms.

Gary weighs 0.3 kilograms more than Bert.

Miles weighs 0.75 kilograms less than Bert.

How many kilograms do the three boys weigh altogether? (2 marks)

70. **A+** Decimals (234428) **Core**

Jane has two 4-litre cans of paint.

She divides the paint up equally between her 32 art students.

How much paint, in litres, will each student receive?

Write your answer as a decimal. (2 marks)

Worked Solutions

1. **C** Decimals (232783) **Core**

Numbers in descending order are:

0.20, 0.05, 0.04, 0.0076, 0.0070

$\therefore 0.2$ is greater than 0.05

$\Rightarrow A$

2. **C** Decimals (233851) **Core**

A possible strategy:

A quick estimate of the 1st 2 options shows that both sums will be lower than 5 kg.

$\Rightarrow$ Evaluate only the last 2 options:

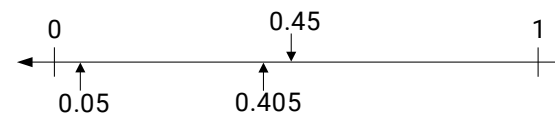
Group 3: $2.5 + 2.92 = 5.42$ kg

Group 4: $2.87 + 2.53 = 5.40$ kg

$\Rightarrow C$

3. **B** Decimals (236026) **Core**

Placing decimals in order: 0.05, 0.405, 0.45



$\Rightarrow D$

4. **B+** Decimals (234402) **Core**

$$202 \times 0.1 = 202 \times \frac{1}{10} = 20.2$$

$\therefore$ less than 202

$\Rightarrow A$

5. **B+** Decimals (234415) **Core**

$$9.634 \div 100 = 0.09634$$

When dividing by 100, move the decimal point 2 positions to the left.

$\Rightarrow D$

6.

B+

 Decimals (234411)

Core

$2.83 \times 10 = 28.3$
When multiplying by 10, move the decimal
point 1 position to the right.
 $\Rightarrow C$

7.

B+

 Decimals (232385)

Core

The digits to the right of the decimal place are (in order):
tenths, hundredths, thousandths, ...
 $\therefore$ The correct number is 7.8231
 $\Rightarrow C$ 8.

A

 Decimals (234388)

Core

 $8.8 \div 0.4 = 88 \div 4$ (Multiplying by 10 to remove decimals from the divisor)
 $= 22$
 $\Rightarrow D$ 9.

D

 Decimals (232357)

Core

 -1.5 10.

D

 Decimals (233369)

Core

 $123.4567 \approx 123.46$ (2 d.p.)11.

C

 Decimals (233372)

Core

 $45.796 \approx 45.80$ (2 d.p.)12.

C

 Decimals (234409)

Core

 $22.5 \div 10 = \frac{22.5}{10}$
 $= 2.25$

13.

C

 Decimals (236015)

Core

Rounding each item to the nearest dollar:

hammer = \$6
glue = \$4
wood = \$12
nails = \$2
stain = \$4

Shannon's Estimate = \$6 + \$4 + \$12 + \$2 + \$4 = \$28

14.

C

 Decimals (232370)

Core

20.295 is the shortest distance.
 $\therefore$ Half marathon 3 was the shortest.

15.

C

 Decimals (232809)

Core

Order from smallest to largest
 $\Rightarrow 4.08, 4.38, 4.80, 4.83, 4.88$

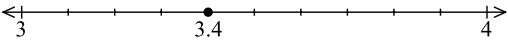
16.

C

 Decimals (233352)

Core

Method 1.
Test 3: $3.4 - 3 = 0.4$
Test 4: $4 - 3.4 = 0.6$
 $\therefore 3.4 \approx 3$ (nearest whole number) as it is closer

Method 2.
Using a number line

 $\therefore 3.4 \approx 3$ (nearest whole number) as it is closer

17.

C

 Decimals (233589)

Core

Converting all to decimals
 $\Rightarrow \frac{1}{4} = 0.25$
 $\Rightarrow \frac{4}{5} = 0.8$
 $\Rightarrow \frac{1}{3} = 0.\dot{3}$
 $\therefore$ Descending order is
 $0.8, 0.\dot{3}, 0.25, 0.21, 0.205 \Rightarrow \frac{4}{5}, \frac{1}{3}, \frac{1}{4}, 0.21, 0.205$

18. C Decimals (233877) Core

Difference:

$$\begin{aligned} 14.253 - 9.121 &= 14.253 - 9 - 0.121 \\ &= 5.253 - 0.121 \\ &= 5.132 \end{aligned}$$

19. C Decimals (234383) Core

$$\begin{aligned} (2.48 + 3.72) - 2.50 &= 2.48 + 3 - 2 + 0.72 - 0.50 \\ &= 3.48 + 0.22 \\ &= 3.7 \end{aligned}$$

20. C Decimals (233628) Core

First line up points and add place holder 0's

$$\begin{array}{r} ^1 3.200 + \\ 14.850 \\ 0.126 \\ \hline 18.176 \end{array}$$

$\therefore 3.2 + 14.85 + 0.126 = 18.176$

21. C Decimals (233375) Core

$$139.98 \approx 140.0 \text{ (1 d.p.)}$$

22. C Decimals (232813) Core

Order from largest to smallest

$$\Rightarrow 10.450, 10.405, 10.145, 10.045, 10.04$$

23. C Decimals (232788) Core

Degrees warmer = $26.4 - 22.7$

$$= 3.7^\circ$$

24. C Decimals (235934) Core

- a. $0.24 \times 10 = 2.4$
(Multiplying by 10 “moves” the decimal point 1 place to the right.)
- b. $13.4 \times 100 = 1340$
(Multiplying by 100 “moves” the decimal point 2 places to the right.)
- c. $242.52 \times 1000 = 242\,520$
(Multiplying by 1000 “moves” the decimal point 3 places to the right.)

25. C Decimals (235942) Core

- a. $234.2 \div 10 = 23.42$
(Dividing by 10 “moves” the decimal point 1 place to the left.)
- b. $1.237 \div 100 = 0.01237$
(Dividing by 100 “moves” the decimal point 2 places to the left.)
- c. $4536.2 \div 1000 = 4.5362$
(Dividing by 1000 “moves” the decimal point 3 places to the left.)

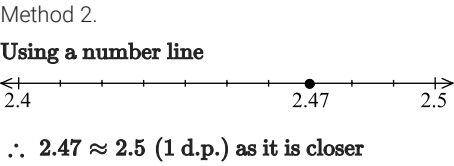
26. C Decimals (233311) Core

Method 1.

Test 2.4: $2.47 - 2.4 = 0.07$

Test 2.5: $2.5 - 2.47 = 0.03$

$\therefore 2.47 \approx 2.5$ (1 d.p.) as it is closer



27. C Decimals (233392) Core

$$\frac{7}{10} = 0.7$$

28. C Decimals (233609) Core

Converting all to decimals

$$\Rightarrow \frac{9}{10} = 0.9$$

$$\Rightarrow \frac{91}{100} = 0.91$$

$$\Rightarrow \frac{10}{11} = 0.\overline{9090}$$

∴ Descending order is

$$0.09, 0.099, 0.9, 0.\overline{9090}, 0.91 \Rightarrow 0.09, 0.099, \frac{9}{10}, \frac{10}{11}, \frac{91}{100}$$

29. C Decimals (234358) Core

$$\begin{aligned} 25.1 - 18.5 &= 25.1 - 18 - 0.5 \\ &= 7.1 - 0.5 \\ &= 6.6 \end{aligned}$$

30. C Decimals (234363) Core

$$\begin{aligned} 28.24 - 15.8 &= 28.24 - 15 - 0.8 \\ &= 13.24 - 0.80 \\ &= 12.44 \end{aligned}$$

$$\begin{array}{r} \overset{7}{2} \overset{1}{8}.24 - \\ \underline{15.80} \\ 12.44 \end{array}$$

31. C Decimals (236005) Core

$$\begin{aligned} \text{Number of tiles} &= 3.6 \div 0.06 \\ &= (3.6 \times 100) \div (0.06 \times 100) \\ &= 360 \div 6 \\ &= 60 \end{aligned}$$

∴ Gladys needs to buy 60 ceramic tiles.

32. C Decimals (234361) Core

$$\begin{aligned} 123.9 - 80.05 &= 123.9 - 80 - 0.05 \\ &= 43.90 - 0.05 \\ &= 43.85 \end{aligned}$$

33. C Decimals (233862) Core

Extra people living in Cuba

$$\begin{aligned} &= (11.475 - 11.096) \times 1\,000\,000 \\ &= 0.379 \times 1\,000\,000 \\ &= 379\,000 \end{aligned}$$

34. C Decimals (233401) Core

$$\begin{aligned} 1\frac{1}{2} &= 1\frac{1 \times 50}{2 \times 50} \\ &= 1\frac{50}{100} \\ &= 1.5 \end{aligned}$$

35. C Decimals (233390) Core

$$\frac{45}{100} = 0.45$$

36. C Decimals (232798) Core

Let h = height of basket section

$$h + 21.55 = 25.2$$

$$\therefore h = 25.2 - 21.55$$

$$= 25.2 - 22 + 0.45$$

$$= 3.2 + 0.45$$

$$= 3.65$$

∴ The basket section is 3.65 metres high

37. B Decimals (233870) Core

a. $\begin{array}{r} \overset{1}{\$} \overset{1}{3} \overset{1}{1}.25 + \\ \overset{1}{\$} 15.67 \\ \underline{\overset{1}{\$} 28.30} \\ \overset{1}{\$} 75.22 \end{array}$

∴ Verne has sales of \$75.22.

b. $\begin{array}{r} \overset{9}{\$} \overset{9}{0} \overset{9}{0}.00 - \\ \overset{1}{\$} 75.22 \\ \underline{\hspace{1.5cm}} \\ \overset{1}{\$} 24.78 \end{array}$

∴ Verne needs to sell an additional \$24.78 of produce.

38. **B** Decimals (232780) **Core**

$$\begin{aligned}\text{Maximum distance} &= 300 \times 1.5 \\ &= 3 \times 100 \times 1.5 \\ &= 3 \times 150 \\ &= 450 \text{ mm}\end{aligned}$$

39. **B** Decimals (233379) **Core**

$$4.589 \approx 4.59 \text{ m (2 d.p.)}$$

40. **B** Decimals (233395) **Core**

$$\frac{12}{1000} = 0.012$$

41. **B** Decimals (233434) **Core**

Using the division algorithm

$$\begin{array}{r} 0.3333... \\ 3 \overline{) 1.0000} \end{array}$$

$$\begin{aligned}\therefore \frac{1}{3} &= 0.3333... \\ &= 0.\dot{3}\end{aligned}$$

42. **B** Decimals (236594) **Core**

$$\begin{aligned}\text{a. } 1.2 \times 8 &= 12 \times 8 \div 10 \\ &= 96 \div 10 \\ &= 9.6\end{aligned}$$

$$\begin{aligned}\text{b. } 0.8 \times 0.7 &= 8 \times 7 \div 100 \\ &= 56 \div 100 \\ &= 0.56\end{aligned}$$

$$\begin{aligned}\text{c. } 2.5 \times 0.04 &= 25 \times 4 \div 1000 \\ &= 100 \div 1000 \\ &= 0.1\end{aligned}$$

$$\begin{aligned}\text{d. } 0.05 \times 1.6 &= 5 \times 16 \div 1000 \\ &= 80 \div 1000 \\ &= 0.08\end{aligned}$$

43. **B** Decimals (234367) **Core**

Change in temperature:

$$\begin{aligned}-15.4 - (-13.6) &= -15.4 + 13.6 \\ &= -15.4 + 13 + 0.6 \\ &= -2.4 + 0.6 \\ &= -1.8\end{aligned}$$

$\therefore$ The change in temperature was -1.8°C

44. **B** Decimals (233412) **Core**

$$\begin{aligned}2\frac{3}{4} &= 1\frac{3 \times 25}{4 \times 25} \\ &= 2\frac{75}{100} \\ &= 2.75\end{aligned}$$

45. **B** Decimals (233385) **Core**

$$\begin{aligned}29.50072 \div 8 &= 3.68759 \\ &\approx 3.7 \text{ (1 d.p.)}\end{aligned}$$

46. B Decimals (232816) Core

Order from lowest to highest water level

⇒ Tues , Thurs , Mon , Fri , Wed

- a. Highest = 1.42 m ⇒ Wednesday
- b. Lowest = 1.07 m ⇒ Tuesday
- c. Middle = 1.24 m ⇒ Monday
- d. Difference between highest and lowest
= 1.42–1.07
= 0.35 metres

47. B+ Decimals (232382) Core

$$\frac{37}{1000} = 0.037$$

48. B+ Decimals (233422) Core

$$\begin{aligned} 0.85 &= \frac{85}{100} \\ &= \frac{85 \div 5}{100 \div 5} \\ &= \frac{17}{20} \end{aligned}$$

49. B+ Decimals (233426) Core

$$\begin{aligned} 1.375 &= 1 \frac{375}{1000} \\ &= 1 \frac{375 \div 25}{1000 \div 25} \\ &= 1 \frac{15}{40} \\ &= 1 \frac{3}{8} \end{aligned}$$

50. B+ Decimals (233484) Core

Using the division algorithm

$$\begin{aligned} &\begin{array}{r} 0.1818... \\ 11 \overline{) 2.0000} \end{array} \\ \therefore \frac{2}{11} &= 0.1818... \\ &= 0.\overline{18} \end{aligned}$$

51. B+ Decimals (233519) Core

Using the division algorithm

$$\begin{aligned} &\begin{array}{r} 0.4166... \\ 12 \overline{) 5.0000} \end{array} \\ \therefore \frac{5}{12} &= 0.4166... \\ &= 0.4\overline{16} \end{aligned}$$

52. B+ Decimals (233504) Core

Using the division algorithm

$$\begin{aligned} &\begin{array}{r} 0.4444... \\ 9 \overline{) 4.0000} \end{array} \\ \therefore \frac{4}{9} &= 0.4444... \\ &= 0.\overline{4} \end{aligned}$$

53. B+ Decimals (233430) Core

$$\begin{aligned} 2.045 &= 2 \frac{45}{1000} \\ &= 2 \frac{45 \div 5}{1000 \div 5} \\ &= 2 \frac{9}{200} \end{aligned}$$

54. B+ Decimals (233415) Core

Using the division algorithm

$$\begin{aligned} &\begin{array}{r} 0.625 \\ 8 \overline{) 5.000} \end{array} \\ \therefore \frac{5}{8} &= 0.625 \end{aligned}$$

55. B+ Decimals (232537) Core

Halfway between 0 and 0.5 = 0.25

$$\begin{aligned} \therefore \text{Halfway between } 22.0 \text{ and } 22.5 \\ &= 22.25 \end{aligned}$$

56. B+ Decimals (232379) Core

$$\begin{aligned} 4 \text{ increments} &= 0.1 \\ \Rightarrow 1 \text{ increment} &= 0.1 \div 4 \\ &= 0.025 \end{aligned}$$

$$\begin{aligned} \therefore P &= 2.4 + 3 \times 0.025 \\ &= 2.475 \end{aligned}$$

57. B+ Decimals (232546) Core

$$\begin{aligned} \text{Average Cost} &= \$17.943701 \\ &= 17.94 \text{ (2 decimal places)} \\ &\approx \$17.95 \text{ (nearest 5 cents)} \end{aligned}$$

58. B+ Decimals (233399) Core

$$\begin{aligned} \frac{8}{25} &= \frac{8 \times 4}{25 \times 4} \\ &= \frac{32}{100} \\ &= 0.32 \end{aligned}$$

59. B+ Decimals (236600) Core

a. $1.2 \div 4 = 0.3$

b. $3.2 \div 0.8 = 32 \div 8$
 $= 4$

c. $42 \div 0.6 = 420 \div 6$
 $= 70$

d. $1.44 \div 1.2 = 14.4 \div 12$
 $= 1.2$

60. B+ Decimals (236662) Core

$$\begin{aligned} 2.389 + 4.12 \times 20 - 5.604 &= 2.389 + 4.12 \times 10 \times 2 - 5.604 \\ &= 2.389 + 41.2 \times 2 - 5.604 \\ &= 2.389 + 82.4 - 5.604 \\ &= 84.789 - 5.604 \\ &= 79.185 \end{aligned}$$

61. B+ Decimals (236651) Core

a. $416.48 \div 200 = 416.48 \div 100 \div 2$
 $= 4.1648 \div 2$
 $= 2.0824$

b. $20.645 \div 50 = 20.645 \div 10 \div 5$
 $= 2.0645 \div 5$
 $= 0.4129$

c. $829.715 \div 500 = 829.715 \div 100 \div 5$
 $= 8.29715 \div 5$
 $= 1.65943$

d. $0.724 \div 400 = 0.724 \div 100 \div 4$
 $= 0.00724 \div 4$
 $= 0.00181$

62. B+ Decimals (236034) Core

$$\begin{aligned} \text{1st increase} &= 4.2 - (-8.2) \\ &= 4.2 + 8.2 \\ &= 12.4 \end{aligned}$$

$$\begin{aligned} \text{2nd increase} &= 1.5 \times 12.4 \\ &= 12.4 + 6.2 \\ &= 18.6 \end{aligned}$$

$$\begin{aligned} \therefore \text{Third temp} &= 4.2 + 18.6 \\ &= 22.8^\circ\text{C} \end{aligned}$$

63. **B+** Decimals (233397) **Core**

$$\begin{aligned}\frac{1}{20} &= \frac{1 \times 5}{20 \times 5} \\ &= \frac{5}{100} \\ &= 0.05\end{aligned}$$

64. **A** Decimals (234421) **Core**

Strategy 1

Cost of 3 kg = $3 \times \$3 = \9

Cost of 0.1 kg = $\frac{3}{10} = 30 \text{ cents}$

$\Rightarrow$ Cost of 0.35 kg = $3.5 \times 30 \text{ cents}$

$= 105 \text{ cents}$

$= \$1.05$

$\therefore$ Cost of 3.35 kg = $9 + 1.05$

$= \$10.05$

Strategy 2

$$\begin{array}{r} 1 \\ 3.35 \times \\ 3 \\ \hline 10.05 \end{array}$$

$\therefore 3.35 \times \$3 = \10.05

65. **A** Decimals (236673) **Core**

Maureen's hourly rate = $245.80 \div 10$

$= \$24.58 \text{ per hour}$

Jessica's hourly rate = $221.85 \div 9$

$= \$24.65 \text{ per hour}$

$\therefore$ Jessica's hourly rate of pay is higher by \$0.07 per hour.

66. **A** Decimals (236607) **Core**

a. $84 \div 1.2 \times 3 = 840 \div 12 \times 0.3$

$= 70 \times 3 \div 10$

$= 21$

b. $20 \times 2.5 \div 0.1 = 50 \div 0.1$

$= 500 \div 1$

$= 500$

c. $1.8 \div 0.2 \times 0.6 = 18 \div 2 \times 0.6$

$= 9 \times 0.6$

$= 9 \times 6 \div 10$

$= 5.4$

d. $0.8 \times 0.03 \div 1.2 = 8 \times 3 \div 1000 \div 1.2$

$= 0.024 \div 1.2$

$= 0.24 \div 12$

$= 0.02$

67. **A** Decimals (236043) **Core**

Total paint = 3×6

$= 18 \text{ litres}$

Paint per student = $\frac{18}{24}$

$= \frac{3}{4}$

$= 0.75 \text{ litres}$

68. **A** Decimals (234393) **Core**

Strategy 1:

$$\begin{aligned} 3.85 \div 3.5 &= (3.5 + 0.35) \div 3.5 \\ &= \frac{3.5}{3.5} + \frac{0.35}{3.5} \\ &= 1 + 0.1 \\ &= 1.1 \end{aligned}$$

Strategy 2:

$$\begin{aligned} 3.85 \div 3.5 &= 38.5 \div 35 \\ &= 1 \frac{3.5}{35} \\ &= 1 \frac{1}{10} \\ &= 1.1 \end{aligned}$$

69. **A+** Decimals (234435) **Core**

Bert's weight = 48.65 kg

Gary's weight = 48.65 + 0.3 = 48.95 kg

Miles' weight = 48.65 - 0.75 = 47.9 kg

$$\begin{aligned} \therefore \text{Total weight} &= 48.65 + 48.95 + 47.9 \\ &= 48 + 48 + 47 + 0.65 + 0.95 + 0.9 \\ &= 143 + 2.5 \\ &= 145.5 \text{ kg} \end{aligned}$$

70. **A+** Decimals (234428) **Core**

Total paint = 2 × 4
= 8 litres

$$\begin{aligned} \text{Paint per student} &= \frac{8}{32} = \frac{1}{4} \\ &= 0.25 \text{ litres} \end{aligned}$$