



## UNIT TEST

1. Represented as a decimal number, seven hundred seventy-nine thousandths is  
A. 0.70079  
B. 0.0779  
C. 0.779  
D. 7.790
2. Represented in numeric form, the number three million four hundred five thousand six is  
A. 3040600  
B. 3045006  
C. 3405006  
D. 3456000

*Use the following information to answer the next question.*

The daily attendance at a summer fair was 2359 on Friday, 3992 on Saturday, and 2891 on Sunday.

3. Which estimate **best** represents the total attendance for the three days?  
A. 7000  
B. 8000  
C. 9000  
D. 10000
4. The approximate product of  $136 \times 56$  is  
A. 1500  
B. 1600  
C. 5000  
D. 6000

*Use the following information to answer the next question.*

Miss Bowen needs to buy 28 m of fabric to make new curtains for the windows in her house. The fabric costs \$15.89 per metre.

5. Which of the following amounts is the **best** estimate for the cost of the fabric?  
A. \$400.00  
B. \$450.00  
C. \$460.00  
D. \$480.00
6. Which of the following numbers is a common factor of 18, 63, and 42?  
A. 2  
B. 3  
C. 6  
D. 7
7. Which of the following numbers is **not** a common multiple of 8, 12, and 16?  
A. 16  
B. 48  
C. 96  
D. 192

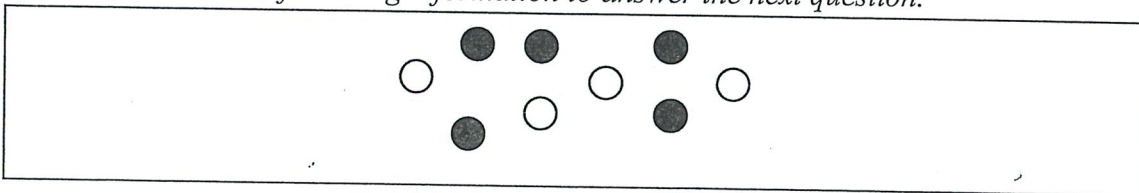


8. Which of the following expressions describes the prime factorization of 30?
- A.  $5 \times 6$                               B.  $2 \times 3 \times 5$   
C.  $2 \times 2 \times 3 \times 5$                   D.  $2 \times 2 \times 2 \times 5$
9. The improper fractions  $\frac{7}{2}$  and  $\frac{9}{4}$  can be respectively represented by the mixed numbers
- A.  $3\frac{1}{2}$  and  $2\frac{1}{2}$                           B.  $3\frac{1}{2}$  and  $2\frac{1}{4}$   
C.  $3\frac{1}{3}$  and  $2\frac{1}{4}$                           D.  $5\frac{1}{2}$  and  $5\frac{1}{4}$
10. Which of the following fractions has the **least** value?
- A.  $\frac{73}{15}$   
B.  $\frac{79}{15}$   
C.  $5\frac{3}{15}$   
D.  $4\frac{14}{15}$

**Numerical Response**

11. When the improper fraction  $\frac{33}{4}$  is converted to a mixed number, the whole number is \_\_\_\_\_.

Use the following information to answer the next question.



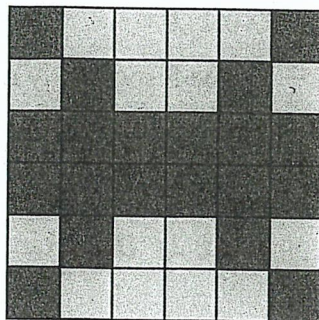
12. The ratio of the total number of circles to the number of shaded circles is
- A. 9:4                      B. 4:9                      C. 5:9                      D. 9:5



### CHALLENGER QUESTION

Use the following information to answer the next question.

Shaylah uses blue and yellow markers to colour this grid.



13. Shaylah realizes that the ratio 5:4 can be used to describe the number of
- yellow squares to number of blue squares
  - yellow squares to total number of squares
  - blue squares to number of yellow squares
  - blue squares to total number of squares

Use the following information to answer the next question.

John has 3 DVDs, 4 CDs, 7 books, and an orange in his bag.

14. What is the ratio of the number of DVDs to CDs in his bag?
- 1:2
  - 1:3
  - 3:2
  - 3:4
15. How is 52% expressed as a fraction?
- $\frac{2}{5}$
  - $\frac{1}{3}$
  - $\frac{13}{25}$
  - $\frac{11}{21}$
16. What is the decimal equivalent of 8.2%?
- 820.0
  - 82.0
  - 0.82
  - 0.082



Use the following information to answer the next question.

Strawberry ice cream is approximately 40% fat.

17. Write this percentage as a fraction in lowest terms.

- A.  $\frac{40}{100}$
- B.  $\frac{20}{50}$
- C.  $\frac{10}{25}$
- D.  $\frac{2}{5}$

Use the following information to answer the next question.

The given table shows the temperatures in four different towns in Alberta on a particular day in winter.

Town	Temperature ( $^{\circ}\text{C}$ )
Camrose	5
Fox Creek	-5
Onoway	-1
Smoky Lake	0

18. In which town was the temperature a positive integer?

- A. Onoway
- B. Camrose
- C. Fox Creek
- D. Smoky Lake

Use the following information to answer the next question.

A set of integers is shown.

-10, -8, +9, -13

19. Which of the following number lines represents the correct order of the given integers?

- A.
- B.
- C.
- D.

20. In which of the following sets of integers do all four integers have a value less than -10?

- A. -9, -8, -7, -6
- B. -12, -9, -6, -3
- C. -12, -11, -9, -8
- D. -14, -13, -12, -11



*Use the following information to answer the next question.*

Marnie builds a tower out of 9 building blocks. Each block has a height of 7.6 cm.

21. How high is the tower that Marnie built?
- A. 684 cm                      B. 68.4 cm  
C. 6.84 cm                     D. 0.684 cm
22. What is the quotient of  $92.4 \div 2$  using the strategy of front-end estimation?
- A. 41                              B. 43  
C. 45                              D. 48

*Use the following information to answer the next question.*

A relay team of 7 members ran a total of 132.3 m during their last practice run.

23. If each team member ran the same distance at the same speed, how far did each team member run?
- A. 1.89 m                        B. 18.9 m  
C. 189 m                         D. 0.189 m

*Use the following information to answer the next question.*

Kalen has 22.8 m of string. He plans to cut the string into 4 equal pieces to use for 4 different kites.

**Written Response**

24. How long will each piece of string be?



25. What is the value of the expression  $8 \times 2 + 23 - 56 \div 7$ ?

A. 27

B. 29

C. 31

D. 33

26. The expression  $20 \div 4 + 16 \times 2$  is equal to

A. 36

B. 37

C. 42

D. 44



## ANSWERS AND SOLUTIONS – UNIT TEST

1. C	7. A	13. C	19. B	25. C
2. C	8. B	14. D	20. D	26. B
3. C	9. B	15. C	21. B	
4. D	10. A	16. D	22. C	
5. D	11. 8	17. D	23. B	
6. B	12. D	18. B	24. WR	

1. C

Step 1

Since there is no “and” in the written number, you know that there is no whole number. Therefore, the decimal number will start with 0 followed by a decimal point.

Step 2

Since the fraction part of the number ends with the word “thousandths,” you know that there will be three digits to right of the decimal. 0. \_\_\_\_\_

Step 3

The three digits that represent the words “seven hundred seventy-nine” are 779.

Putting the two parts together, “seven hundred seventy-nine thousandths” is represented by the decimal number 0.779.

2. C

Step 1

Start by determining the numeric form for each period (millions, thousands, ones).

- Three million is in the millions period. Its numeric form is 3000000.
- Four hundred five thousand is in the thousands period. Its numeric form is 405000.
- Six is in the ones period. Its numeric form is 6.

Step 2

Add the three sets of numeric forms together to get the total numeric form.

$$\begin{array}{r} 3\,000\,000 \\ 405\,000 \\ + \quad \quad 6 \\ \hline 3\,405\,006 \end{array}$$

The number three million four hundred five thousand six is represented in numeric form as 3405006.

3. C

Step 1

Since the alternatives are all numbers rounded to their greatest place values, round the numbers given in the problem to their greatest values.

- 2 359 → 2 000 because  $3 < 5$
- 3 992 → 4 000 because  $9 > 5$
- 2 891 → 3 000 because  $8 > 5$

Step 2

Add the three rounded attendances.

$$2\,000 + 4\,000 + 3\,000 = 9\,000$$

The total attendance for the three days is best represented by the estimate 9000.

Step 3

To check the estimate, find the actual attendance and compare it to the estimate of 9000.

$$2\,359 + 3\,992 + 2\,891 = 9\,242$$

The estimate of 9000 is very close to the actual attendance of 9242, showing that 9000 was the best estimate.

**4. D**

## Step 1

Round each factor to its greatest place value.

$$136 \rightarrow 100 \text{ because } 3 < 5$$

$$56 \rightarrow 60 \text{ because } 6 > 5.$$

## Step 2

Multiply the two estimated numbers.

$$100 \times 60 = 6000$$

The approximate product of  $136 \times 56$  is 6000.

**5. D**

## Step 1

Round the decimal number (\$15.89) to the nearest whole dollar.

$$\$15.89 \rightarrow \$16.00 \text{ because } 8 > 5.$$

Round the whole number to the nearest ten.

$$28 \rightarrow 30 \text{ because } 8 > 5.$$

## Step 2

Calculate the estimated total cost by multiplying the two estimated amounts.

$$\$16.00 \times 30 = \$480.00$$

**6. B**

## Step 1

Determine the factors of the number 18.

$$1 \times 18 = 18$$

$$2 \times 9 = 18$$

$$3 \times 6 = 18$$

## Step 2

Determine the factors of the number 63.

$$1 \times 63 = 63$$

$$3 \times 21 = 63$$

$$7 \times 9 = 63$$

## Step 3

Determine the factors of the number 42.

$$1 \times 42 = 42$$

$$2 \times 21 = 42$$

$$3 \times 14 = 42$$

$$6 \times 7 = 42$$

## Step 4

Compare the three lists of factors to see which numbers appear on all three lists.

The factors of 18 are 1, 2, 3, 6, 9, and 18.

The factors of 63 are 1, 3, 7, 9, 21, and 63.

The factors of 42 are 1, 2, 3, 6, 7, 14, 21, and 42.

The common factors of 18, 63, and 42 are 1 and 3. Only 3 is listed in all the alternatives, so the correct answer is 3.

**7. A**

## Step 1

Determine the factors of all the alternatives.

- Factors of 16: 1, 2, 4, 8, 16
- Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
- Factors of 96: 1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 96
- Factors of 192: 1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, 64, 96, 192

## Step 2

Look to see which numbers are a multiple of 8, 12, and 16.

The number 16 has 8 and 16 as a factor, but not 12.

$$1 \times 16 = 16$$

$$2 \times 8 = 16$$

The numbers 48, 96, and 192 are all multiples of 8, 12, and 16.

$$8 \times 6 = 48$$

$$12 \times 4 = 48$$

$$16 \times 3 = 48$$

$$8 \times 12 = 96$$

$$16 \times 6 = 96$$

$$8 \times 24 = 192$$

$$12 \times 16 = 192$$

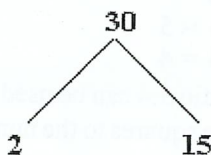


**8. B**

Step 1

The number 30 is divisible by 2.  
 $30 \div 2 = 15$

This factorization can be shown by the following factor tree.

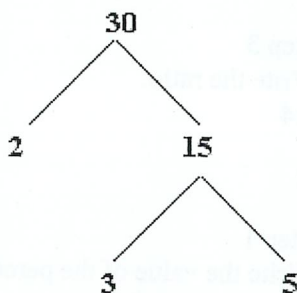


Since 2 is a prime number, it cannot be broken down any more, so that part of the factorization is complete.

Step 2

The number 15 is divisible by 3.  
 $15 \div 3 = 5$

The factor tree can be extended to show this part of the factorization.



Since 3 and 5 are also prime numbers, the prime factorization is complete.

The expression  $2 \times 3 \times 5$  describes the factorization of the number 30.

**9. B**

Step 1

Convert the improper fraction  $\left(\frac{7}{2}\right)$  to a mixed number by dividing the numerator (7) by the denominator (2).

$$7 \div 2 = 3.5 = 3\frac{1}{2}$$

Step 2

Convert the improper fraction  $\left(\frac{9}{4}\right)$  to a mixed number by dividing the numerator (9) by the denominator (4).

$$9 \div 4 = 2.25 = 2\frac{1}{4}$$

The improper fractions  $\frac{7}{2}$  and  $\frac{9}{4}$  can be respectively represented by the mixed numbers  $3\frac{1}{2}$  and  $2\frac{1}{4}$ .

**10. A**

Before you can compare the fractions and mixed numbers, you need to change the two mixed numbers into improper fractions.

Step 1

To convert  $5\frac{3}{15}$  into an improper fraction,

multiply the whole number (5) by the denominator (15), and add the numerator (3).  
 $(5 \times 15) + 3 = 78$

The denominator will stay the same.

$$5\frac{3}{15} = \frac{78}{15}$$

Step 2

To convert  $4\frac{14}{15}$  into an improper fraction,

multiply the whole number (4) by the denominator (15), and add the numerator (14).  
 $(4 \times 15) + 14 = 74$

The denominator will stay the same.

$$4\frac{14}{15} = \frac{74}{15}$$

Step 3

Since the denominators are all the same, order the improper fractions by the numerators from least value to greatest value.

$$\frac{73}{15}, \frac{74}{15}, \frac{78}{15}, \frac{79}{15}$$

The fraction with the least value is  $\frac{73}{15}$ .



## 11. 8

## Step 1

Divide the numerator by the denominator.

$$33 \div 4 = 8 \text{ R}1$$

## Step 2

Determine the whole number.

When the numerator is divided by the denominator, the whole number quotient becomes the whole number of the mixed number.

Since the quotient is 8, the whole number of the mixed number is also 8.

$$8 \text{ R}1 \rightarrow 8\frac{1}{4}$$

## 12. D

## Step 1

Count the total number of circles.

There are 9 circles in total. 9 will be the first number of the ratio.

(9:?)

## Step 2

Count the number of shaded circles.

There are 5 shaded circles. 5 will be the second number of the ratio.

(9:5)

The ratio of the total number of circles to the number of shaded circles is 9:5.

## 13. C

## Step 1

Start by counting the number of blue squares, yellow squares, and total number of squares.

There are 20 blue squares, 16 yellow squares, and 36 squares in total.

Use these numbers to determine the ratios for each of the given choices.

Remember that ratios are usually reduced to their lowest terms. The given ratio of 5:4 is reduced to its lowest terms.

## Step 2

Find the ratio for the comparison of blue squares to yellow squares.

Since there are 20 blue squares and 16 yellow squares, the ratio for the number of blue squares to the number of yellow squares is 20:16.

To reduce the ratio to its lowest terms, divide both numbers by 4 (the greatest common factor).

$$20 \div 4 = 5$$

$$16 \div 4 = 4$$

The ratio 5:4 can be used to describe the number of blue squares to the number of yellow squares.

## 14. D

## Step 1

Identify the units that are being compared.

The DVDs and CDs are being compared.

## Step 2

Determine the order of the terms.

The number of DVDs is first, and the number of CDs is second.

## Step 3

Write the ratio.

3:4

## 15. C

## Step 1

Write the value of the percentage over a denominator of 100.

The value of the percentage is 52, so it is the numerator.

$$52\% = \frac{52}{100}$$

## Step 2

Reduce the fraction to lowest terms.

Divide the numerator and denominator by the greatest common factor (GCF). The GCF of 52 and 100 is 4.

$$\frac{52}{100} = \frac{52 \div 4}{100 \div 4} = \frac{13}{25}$$

Expressed as a fraction, 52% is  $\frac{13}{25}$ .

**16. D**

Step 1

Write the percentage as a fraction.

With a percentage, the denominator is always 100.

$$8.2\% = \frac{8.2}{100}$$

Step 2

Divide the numerator by the denominator (100).

$$8.2 \div 100 = 0.082$$

Therefore, the decimal equivalent is 0.082.

**17. D**

Step 1

Write the percentage as a fraction with a denominator of 100.

$$\frac{40}{100}$$

Step 2

Reduce the fraction to lowest terms.

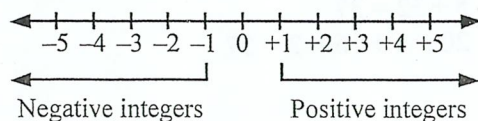
Divide both the numerator and denominator by their greatest common factor.

$$\frac{40 \div 20}{100 \div 20} = \frac{2}{5}$$

**18. B**

On a number line, the positive integers are the whole numbers that are located to the right of 0. They may or may not be represented with a positive sign(+).

Although 0 is an integer, it is considered to be neutral, neither positive nor negative.



Recorded in the town of Camrose, the temperature of  $5^{\circ}\text{C}$  is a positive integer.

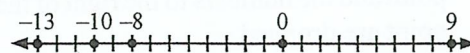
**19. B**

Positive numbers are represented to the right of 0. They get larger in value as they move away from 0. The integer +9 will be located 9 units to the right of 0.

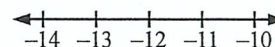
Negative numbers are represented to the left of 0. They get smaller in value as they move away from 0.

The integers  $-13$ ,  $-10$ , and  $-8$  will be located 13, 10, and 8 units, respectively, to the left of 0.

This number line shows the correct placement of the given integers.

**20. D**

The farther the integer is to the left of the 0 on a horizontal number line, the smaller the value will be of the negative integer. This means that the integers that have a value less than  $-10$  will all be located to the left of  $-10$  on a horizontal number line.



The set of numbers in which all the integers have a value less than  $-10$  is  $-14$ ,  $-13$ ,  $-12$ , and  $-11$ .

**21. B**

Step 1

To determine the height of the tower, multiply the height of one block by the number of blocks used to build the tower.

$$1 \text{ block} = 7.6 \text{ cm}$$

$$9 \text{ blocks} = 7.6 \text{ cm} \times 9$$

Step 2

Calculate the product, regrouping where necessary.

Since there is one digit to the right of the decimal in 7.6, there must also be one digit to the right of the decimal in the product.

$$\begin{array}{r} 7.6 \\ \times 9 \\ \hline 68.4 \end{array}$$

The height of the tower is 68.4 cm.



22. C

Step 1

Use front-end estimation.

In front-end estimation, the first number (greatest place value) is kept and all numbers to the right are replaced with zeros. The decimal point and the numbers to the right of the decimal point are dropped.

$$92.4 \rightarrow 90$$

Step 2

Divide the estimated number by 2.

$$90 \div 2 = 45$$

Using the strategy of front-end estimation, the estimated quotient of  $92.4 \div 2$  is 45.

23. B

Step 1

To determine the distance each member ran, divide the total distance by the number of runners.

$$7 \text{ runners} = 132.3 \text{ m}$$

$$1 \text{ runner} = 132.3 \text{ m} \div 7$$

Step 2

Divide using long division.

When dividing, be sure to line up the decimal points in both the dividend and the quotient.

$$\begin{array}{r} 18.9 \\ 7 \overline{)132.3} \\ \underline{-7} \phantom{.3} \\ 62 \phantom{.3} \\ \underline{-56} \phantom{.3} \\ 63 \phantom{.3} \\ \underline{-63} \phantom{.3} \\ 0 \end{array}$$

Each runner ran 18.9 m.

24. WR

To solve this problem, divide 22.8 by 4.

$$\begin{array}{r} 5.7 \\ \text{Divisor} \rightarrow 4 \overline{)22.8} \leftarrow \text{Quotient} \\ \leftarrow \text{Dividend} \\ \underline{20} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Each piece of string will be 5.7 m long.

25. C

Step 1

According to the order of operations, do the multiplications and divisions first, in the order they appear, from left to right.

It may be helpful to put brackets around the multiplication and division parts of the expression.

$$\begin{aligned} (8 \times 2) + 23 - (56 \div 7) \\ = 16 + 23 - 8 \end{aligned}$$

Step 2

According to the order of operations, do the additions and subtractions next, in the order they appear, from left to right.

$$\begin{aligned} 16 + 23 - 8 \\ = 39 - 8 \\ = 31 \end{aligned}$$

$$8 \times 2 + 23 - 56 \div 7 = 31$$

26. B

Step 1

According to the order of operations, do multiplications and divisions first, from left to right in the order in which they appear.

It may be helpful to put brackets around the division and multiplication parts of the expression first.

$$\begin{aligned} (20 \div 4) + (16 \times 2) \\ = 5 + 32 \end{aligned}$$

Step 2

According to the order of operations, do additions and subtractions next, from left to right in the order in which they appear.

$$5 + 32 = 37$$

$$20 \div 4 + 16 \times 2 = 37$$