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Introduction to Quizzes and Tests

We provide a quiz for, on average, every four lessons and a test covering the material of two to three quizzes, with one or two tests per unit. Students should need no more than 10 minutes to complete a quiz and no more than 45 minutes to complete a test.

Quizzes cover material both from lessons that are required to cover the curriculum and lessons labelled as recommended, while tests only cover material from lessons that are required to cover the curriculum.

Quizzes can be used as confidence builders and as formative assessment tools. A quiz should be administered after the last lesson that it covers has been taught. Tests are intended to be used as summative assessment tools. We recommend allowing students time to receive and internalize the feedback from all relevant quizzes before administering the test. The introduction to each unit in the Teacher Resource identifies which lessons are covered by each quiz and test.
Unit 9: Number Sense

Quiz (Lessons 38–40) — AB

Name: ______________________
Date: ________________

1. Fill in the blanks.
   a) 53 hundredths = ___ tenths ___ hundredths
   b) 28 hundredths = ___ tenths ___ hundredths
      \[ \frac{53}{100} = 0. ___ ___ \]
      \[ \frac{28}{100} = 0. ___ ___ \]

2. Express the value of the fraction in two different ways.
   a) \( \frac{43}{100} \) ___ tenths ___ hundredths
   b) \( \frac{7}{100} \) ___ tenths ___ hundredths
      \[ \frac{43}{100} \] hundredths
      \[ \frac{7}{100} \] hundredths

3. Megan says that 0.31 is greater than 0.6 because 31 is greater than 6.
   Explain Megan’s mistake. __________________________________________________________
   _______________________________________________________________________________
   _______________________________________________________________________________

4. Write the decimal as a sum of a whole number and decimal fractions.
   Do not write the fractions with a numerator of 0.
   a) 2.319 = b) 5.047 =
   c) 0.105 = d) 3.002 =
Unit 9: Number Sense

Quiz (Lessons 38–40) — AB

1. a) \(5, 3\)
   \[\frac{53}{100}, 0.53\]
   b) \(2, 8\)
   \[\frac{28}{100}, 0.28\]

2. a) \(4, 3\)
   \[43\]
   b) \(0, 7\)
   \[7\]

3. Megan did not consider the place value. There are 3 tenths in 0.31 and 6 tenths in 0.6, so 0.6 is greater.

4. a) \(2 + \frac{3}{10} + \frac{1}{100}\)
   \[\frac{9}{1000}\]
   b) \(5 + \frac{4}{100} + \frac{7}{1000}\)
   c) \(\frac{1}{10} + \frac{5}{1000}\)
   d) \(3 + \frac{2}{1000}\)
Unit 9: Number Sense

Quiz (Lessons 44–47) — AB

1. Add by adding each place value.
   a) \(12.31 + 6.4\)
   b) \(37.8 + 52.17\)

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   | 6    | 4    |         |            |

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   +-----+-----+--------+------------|
   | 5    | 2    | 1      | 7          |

2. Zara adds \(3.54 + 42.1\) on grid paper. She gets 77.5. What mistake did she make? Explain.

3. Add or subtract mentally.
   a) \(0.54 + 0.31 = \) \_\_\_
   b) \(4.95 - 2.84 = \) \_\_\_
   c) \(7.09 - 4.02 = \) \_\_\_
   d) \(2.37 + 1.22 = \) \_\_\_
   e) \(5.73 - 1.62 = \) \_\_\_
   f) \(6.73 - 2.53 = \) \_\_\_
   g) \(6.32 + 2.54 = \) \_\_\_
   h) \(4.35 - 2.12 = \) \_\_\_
   i) \(9.47 - 7.46 = \) \_\_\_

4. Ken made punch by mixing 0.45 L of juice with 0.37 L of ginger ale. How many litres of punch did he make?

5. Armand has $31.50. If he buys a pair of shoes for $16.25 and a shirt for $10.50, will he have enough money left to buy another shirt at the same price?

BONUS ► The seller offered Armand $5.25 off for the second shirt. Will Armand have enough money left to buy the shirt after the discount?
1. a) 18.71  
b) 89.97  
2. Zara did not line up the decimals properly.  
   She added:  
   \[
   \begin{array}{c}
   & 3 & 5 & 4 \\
   + & 4 & 2 & 1 \\
   \hline
   & 7 & 7 & 5
   \end{array}
   \]
3. a) 0.85  
b) 2.11  
c) 3.07  
d) 3.59  
e) 4.11  
f) 4.2  
g) 8.86  
h) 2.23  
i) 2.01  
4. 0.82 L  
5. $31.50 − $16.25 − $10.50  
   = $4.75. He does not have enough for another shirt.  
   **BONUS**  
   $10.50 − $5.25  
   = $5.25. He does not have enough for another shirt because he only has $4.75 left.
1. Write the decimal as a sum of a whole number and decimal fractions. Do not write the fractions with a numerator of 0.
   a) 3.504 =  
   b) 8.15 =  
   c) 2.009 =  
   d) 0.087 =  

2. Add the decimals by lining up the decimal points. You will need to regroup.
   a) 0.51 + 0.6  
   b) 1.47 + 0.35  
   BONUS 0.23 + 2.49 + 1.16

3. Jasmin bought a pair of running shoes for $34.50 and a shirt for $17.99. How much money did she spend in total?

4. Round the number to the given digit. Regroup if necessary.
   a) 4.296 hundredths  
   b) 3.95 tenths  
   c) 2.972 tenths  
   BONUS 7.996 hundredths

5. Estimate the sum or difference using the whole-number parts of the decimals.
   a) 2.356 + 5.602 ≈  
   BONUS 11.501 + 2.48 − 3.61 ≈  

Unit Quizzes and Tests for Grade 6
6. The decimal hundredths that could be rounded to 3.2 are from 3.15 to 3.24. Which decimal hundredths could be rounded to 6.1? Explain how you know.

BONUS ➤ Which decimal hundredths could be rounded to 5.0?
Unit 9: Number Sense

Test (Lessons 40, 45–47) — AB

1. a) \(3 + \frac{5}{10} + \frac{4}{1000}\)
   
b) \(8 + \frac{1}{10} + \frac{5}{100}\)
   
c) \(2 + \frac{9}{1000}\)
   
d) \(\frac{8}{100} + \frac{7}{1000}\)

2. a) 1.11
   
b) 1.82
   
   **BONUS**
   
   3.88

3. $52.49

4. a) 4.30
   
b) 4.0
   
c) 3.0
   
   **BONUS**
   
   8.00

5. a) \(2 + 6 = 8\)
   
   **BONUS**
   
   \(12 + 2 - 4 = 10\)

6. 6.05 to 6.14
   
   Sample explanation: All numbers above 6.05 would be rounded up to 6.1, and all numbers below 6.14 would be rounded down to 6.1.
   
   **BONUS**
   
   4.95 to 5.04
1. a) To multiply by 10, I move the decimal point ____ place(s) to the ________.
   b) To multiply by 1000, I move the decimal point ____ place(s) to the ________.
   c) To divide by 100, I move the decimal point ____ place(s) to the ________.
   d) To _________ by 1000, I move the decimal point ____ place(s) to the left.
   e) To _________ by 100, I move the decimal point ____ place(s) to the right.

2. Multiply each digit separately. Remember to include the decimal point.
   a) $2.3 \times 3 = ______$  
   b) $7.1 \times 5 = ______$  
   c) $3.2 \times 4 = ______$  
   d) $12.4 \times 2 = ______$
   e) $43.2 \times 3 = ______$  
   f) $71.2 \times 4 = ______$  
   g) $61.1 \times 5 = ______$  
   h) $322.3 \times 3 = ______$

3. Multiply using a grid. Remember to include the decimal point. You may have to regroup.
   a) 
   
   b) 
   
   c) 

4. A nickel is 21.2 mm wide. What is the total width of 5 nickels placed side by side?

5. A square has sides of 5.3 cm. What is its perimeter?

BONUS ➤ Which has a bigger perimeter: a pentagon with sides of 12.3 m or a hexagon with sides of 10.2 m?
Unit 10: Number Sense
Quiz (Lessons 48–51) — AB

1. a) 1, right
   b) 3, right
   c) 2, left
   d) divide, 3
   e) multiply, 2

2. a) 6.9
   b) 35.5
   c) 12.8
   d) 24.8
   e) 129.6
   f) 284.8
   g) 305.5
   h) 966.9

3. a) 325.2
   b) 368.2
   c) 28.02

4. 21.2 × 5 = 106.0
   5 nickels are 106 mm wide.

5. 5.3 × 4 = 21.2
   The perimeter is 21.2 cm.

BONUS
   Pentagon:
   12.3 × 5 = 61.5 m
   Hexagon:
   10.2 × 6 = 61.2 m
   The pentagon has a bigger perimeter.
1. Divide mentally.
   a) \[ 4.2 \div 2 = \underline{\text{_______}} \]  
   b) \[ 96.3 \div 3 = \underline{\text{_______}} \]  
   c) \[ 0.48 \div 4 = \underline{\text{_______}} \]

2. Divide as if the decimal number was a whole number. Then put the decimal point in the correct place.
   a) \[ 5.37 \div 3 \]
   b) \[ 73.6 \div 4 \]
   BONUS \[ 1.38 \div 6 \]

3. Honey comes in a pack of 3 jars for $15.99. How much does each jar of honey cost?
Unit 10: Number Sense

Quiz (Lessons 52, 53, 57) — AB

1. a) 2.1
   b) 32.1
   c) 0.12

2. a) \[
\begin{array}{c}
3 \overline{)5.37} \\
\hline \\
3 \\
23 \\
21 \\
27 \\
27 \\
\hline \\
0 \\
\end{array}
\]

b) \[
\begin{array}{c}
4 \overline{)73.6} \\
\hline \\
4 \\
33 \\
32 \\
16 \\
16 \\
\hline \\
0 \\
\end{array}
\]

BONUS

\[
\begin{array}{c}
6 \overline{)1.38} \\
\hline \\
12 \\
18 \\
18 \\
\hline \\
0 \\
\end{array}
\]

3. \[15.99 \div 3 = 5.33\]
   Each jar of honey costs $5.33.
Unit 10: Number Sense

Test (Lessons 48–53, 57) — AB

Name: ______________________  Date: ________________

1. a) To divide by 10, I move the decimal point ____ place(s) to the ________.
   b) To divide by 1000, I move the decimal point ____ place(s) to the ________.
   c) To multiply by 100, I move the decimal point ____ place(s) to the ________.
   d) To _________ by 10, I move the decimal point ____ place(s) to the right.
   e) To _________ by 100, I move the decimal point ____ place(s) to the left.

2. Multiply each digit separately. Remember to include the decimal point.
   a) 4.1 × 2 = ______  b) 1.1 × 8 = ______
   c) 7.2 × 4 = ______  d) 41.2 × 2 = ______
   e) 51.3 × 3 = ______  f) 13.3 × 3 = ______
   g) 733.2 × 3 = ________  BONUS ▶ 4.321 × 3 = ________

3. Multiply using a grid. Remember to include the decimal point. You may have to regroup.
   a)  
   b)  
   c)  

BONUS ▶ 4.321 × 3 = ________
4. Divide as if the decimal number was a whole number. Then put the decimal point in the correct place.

\[ \begin{align*}
a) \quad & 7.16 \div 4 \\
& \hspace{1cm} 4 \overline{7\ 1\ 6} \\
& \hspace{1cm} \underline{-\ 7\ 6}\ \\
& \hspace{1cm} -\ \\
& \hspace{1cm} = 1.79 \\
\end{align*} \hspace{1cm}
\begin{align*}
b) \quad & 85.4 \div 7 \\
& \hspace{1cm} 7 \overline{8\ 5\ 4} \\
& \hspace{1cm} \underline{-\ 5\ 9}\ \\
& \hspace{1cm} -\ \\
& \hspace{1cm} = 12.17 \\
\end{align*} \hspace{1cm}
\begin{align*}
\text{BONUS} \quad & 2.07 \div 3 \\
& \hspace{1cm} 3 \overline{2\ 0\ 7} \\
& \hspace{1cm} \underline{-\ 2\ 0}\ \\
& \hspace{1cm} -\ \\
& \hspace{1cm} = 0.69 \\
\end{align*} \]

5. A mile is about 1.6 kilometres. Is 12 miles more than 20 km?

6. Seven tickets cost $15.75. How much does each ticket cost?

7. Amy lives 1.3 km from school. She walks to school and back every weekday (5 days per week). How many kilometres does she walk to and from school in a week?

\[ \text{BONUS} \quad \text{Explain how you can find the answer to Question 7 using mental math.} \]
Unit 10: Number Sense
Test (Lessons 48–53, 57) — AB

1. a) 1, left
   b) 3, left
   c) 2, right
   d) multiply, 1
   e) divide, 2

2. a) 8.2
   b) 8.8
   c) 28.8
   d) 82.4
   e) 153.9
   f) 39.9
   g) 2199.6

BONUS
12.963

3. a) 170.5
   b) 422.4
   c) 39.44

4. a) \( \frac{17.16}{4} \)
    4
    31
    28
    36
    36
    0

   b) \( \frac{12.2}{7} \)
    7
    15
    14
    14
    14
    0

   c) \( \frac{0.69}{3} \)
    18
    27
    27
    0

5. \( 12 \times 1.6 = 19.2 \)
   12 miles is less than 20 km.

6. \( 15.75 + 7 = 2.25 \)
   Each ticket costs $2.25.

7. \( 1.3 \times 2 = 2.6 \)
   \( 2.6 \times 5 = 13 \)
   She walks 13 km in a week.

BONUS
Amy walks the distance to or from school 10 times a week. \( 1.3 \times 10 = 13 \), so she walks 13 km in a week.
Unit 11: Geometry
Quiz (Lessons 13–16) — AB

1. a) Predict the result of combining two translations:
P to P': 5 units left and 3 units up
P' to P*: 2 units right and 4 units up
P to P*: ____ units ____________ and
____ units ____________

b) Translate P to P' and P' to P* to check your prediction. Was your prediction correct?
____________

**BONUS** ➤ Draw a shape congruent to P that is not a translation of P. Explain how you know it is not a translation of P.

2. a) Reflect triangle R in line ℓ. Label the image R'.

b) Reflect triangle R' in line m. Label the image R*.

c) Is there a reflection or a translation that takes R to R'? If yes, describe it.

3. a) Rotate polygon M 180° clockwise around point O. Label the image M'.

b) Rotate polygon M' 90° clockwise around point O. Label the image M*.

c) Which rotation around point O takes polygon M to polygon M*?
Unit 11: Geometry
Quiz (Lessons 13–16) — AB

1. a) 3, left
    7, up
b) Teacher to check.

BONUS
Teacher to check drawing.
Sample explanation:
Translated shapes point the same way.
The new shape does not point the same way as P.

2. a) Teacher to check.
b) Teacher to check.
c) Translation 8 units right.

3. a) Teacher to check.
b) Teacher to check.
c) 270° CW or 90° CCW
1. a) Continue the pattern.

b) This pattern is made by repeating the same type of transformation. Identify the transformation used. Draw the mirror line, the translation arrows, or centres of rotation between each polygon and the next.

BONUS Describe a different way to create the same pattern. Use a different transformation or combination of transformations to get from each polygon to the next.

5 to 6:
6 to 7:

2. a) Reflect triangle $DEF$ in the given line.
Write the coordinates of the vertices before and after the reflection.

$D (\_\_\_, \_\_\_) \rightarrow D' (\_\_\_, \_\_\_)$
$E (\_\_\_, \_\_\_) \rightarrow E' (\_\_\_, \_\_\_)$
$F (\_\_\_, \_\_\_) \rightarrow F' (\_\_\_, \_\_\_)$

b) Rotate the triangle $D'E'F'$ around the point $(8, 3)$ clockwise $90^\circ$. Write the coordinates of the vertices after the rotation.

$D' \rightarrow D'' (\_\_\_, \_\_\_)$
$E' \rightarrow E'' (\_\_\_, \_\_\_)$
$F' \rightarrow F'' (\_\_\_, \_\_\_)$

3. Plot and label the points on the coordinate grid in Question 2.
$A (4, 0), B (0, 3), C (7, 6)$
Unit 11: Geometry

Quiz (Lessons 17–20) — AB

1. a) Teacher to check.
   b) Teacher to check.
   There should be a 90° CCW rotation around a marked point between the polygons.

   **BONUS**
   Sample answers:
   5 to 6: Reflect 5 in the vertical line on the right side of the figure.
   6 to 7: Reflect 6 in the bottom horizontal line, then translate image 2 units right and 2 units up.

2. a) Teacher to check reflection.
   \[ D (4, 3) \rightarrow D'(8, 3) \]
   \[ E (1, 5) \rightarrow E'(11, 5) \]
   \[ F (2, 7) \rightarrow F'(10, 7) \]
   b) Teacher to check rotation.
   \[ (8, 3) \]
   \[ (10, 0) \]
   \[ (12, 1) \]

3. Teacher to check.
Unit 11: Geometry

Test (Lessons 13–20) — AB

1. a) Draw a rectangle around the smallest part that is transformed to create the pattern.

b) Describe the transformations used to create the pattern.

2. a) Reflect triangle $DEF$ in the given line. Write the coordinates of the vertices before and after reflection.

$$D (\_, \_) \rightarrow D' (\_, \_)$$
$$E (\_, \_) \rightarrow E' (\_, \_)$$
$$F (\_, \_) \rightarrow F' (\_, \_)$$

b) Rotate triangle $D'E'F'$ around the point $(9, 3)$ $180^\circ$ clockwise. Write the coordinates of the vertices after the rotation.

$$D' \rightarrow D'' (\_, \_)$$
$$E' \rightarrow E'' (\_, \_)$$
$$F' \rightarrow F'' (\_, \_)$$

c) What transformation takes $DEF$ to $D''E''F''$?

BONUS Which vertex of $DEF$ goes to which vertex of $D''E''F''$ under the transformation in part c)?

$$D \rightarrow \_, E \rightarrow \_, F \rightarrow \_$$

3. Plot and label the points on the coordinate grid in Question 2.

$$A (5, 0), B (0, 1), C (7, 6)$$

BONUS Draw two congruent shapes A and B so that there is no single translation, reflection, or rotation that takes A to B. Describe the sequence of transformations that takes A to B.
1. Answers will vary. Sample answers:
   a) Draw a rectangle at top left:

   b) Reflect the rectangle in the horizontal line through the bottom side. Reflect the original and the image in the line through the right side of both rectangles. Translate all 4 rectangles right repeatedly.

2. a) \(D (4, 4) \rightarrow D' (6, 4)\)
   \(E (1, 2) \rightarrow E' (9, 2)\)
   \(F (1, 6) \rightarrow F' (9, 6)\)

   b) \(D'' (12, 2)\)
   \(E'' (9, 4)\)
   \(F'' (9, 0)\)

   c) Translate \(DEF\) 8 units right, 2 units down.

   **BONUS**
   
   \(D''', F''', E'''\)

3. Teacher to check.

   **BONUS**
   
   Answers will vary. Teacher to check.
1. Find the number that makes the equation true.
   a) ____ + 4 = 7    b) ____ ÷ 5 = 3    c) 3 × ____ = 12    BONUS ► 5 + 7 = 6 + ____

2. Let \( x \) stand for the number of bananas in each bag. Write an equation to find \( x \).
   a) 7 bananas in total
      Equation _____________
      ____ bananas in each bag
   b) 14 bananas in total
      Equation _____________
      ____ bananas in each bag

3. Use the picture to explain why you can divide both sides by 4 to solve the equation \( 4 \times b = 8 \).
   _______________________________________________________
   _______________________________________________________
   _______________________________________________________

4. Solve for \( x \) by doing the same thing to both sides of the equation (preserve equality).
   Check your answer.
   a) \( x - 6 = 25 \)    b) \( 5x = 45 \)    c) \( 7 = x ÷ 3 \)    BONUS ► 12 + x = 15 + 12
Unit 12: Patterns and Algebra

Quiz (Lessons 9–11) — AB

1. a) 3
   b) 15
   c) 4

   **BONUS**
   6

2. a) $3x + 1 = 7$
   b) $4x + 2 = 14$

3. Each side is divided into 4 groups. $8 + 4 = 2,$
   so $4 \times 2 = 8,$ so $b = 2.$
   There are 2 apples in each bag.

4. a) $x - 6 + 6 = 25 + 6$
   $x = 31$
   $31 - 6 = 25$ ✓
   b) $5x + 5 = 45 + 5$
   $x = 9$
   $5 \times 9 = 45$ ✓
   c) $7 \times 3 = x + 3 \times 3$
   $21 = x$
   $7 = 21 \div 3$ ✓

   **BONUS**
   $12 + x - 12$
   $= 15 + 12 - 12$
   $x = 15$
   $12 + 15 = 15 + 12$ ✓
1. Susan’s solution for \( x + 44 = 55 \) is shown below. Explain how Susan used logic to solve the equation.

\[
\begin{align*}
x + 44 &= 55 \\
x &= 55 - 44 \\
x &= 11
\end{align*}
\]

2. a) Circle the total in the story. Then write an equation and solve for \( x \).

- 10 boys
- \( x \) girls
- 21 girls and boys altogether

b) Circle the part that is larger in the story. Write the difference in two ways to make an equation and solve for \( x \).

- There are 12 pens.
- There are 3 more pencils than pens.
- There are \( x \) pencils.

3. Replace \( n \) with 5 and say whether 5 is too high or too low. Then try a lower or higher number.

\[
\begin{array}{ccc}
n & 4n + 1 & \text{Answer} \\
5 & & \\
\end{array}
\]

\[
\begin{array}{ccc}
n & 3n - 4 & \text{Answer} \\
5 & & \\
\end{array}
\]

4. Amy is 4 times as old as her brother. Amy is 6 years older than her brother. Finish the model below to find out how old Amy is.

\[
\begin{array}{ccc}
6 & & \\
& & 6
\end{array}
\]

BONUS ▶ Solve the equation and check your answer.

\[27 - x = 19\]
1. $x + 44 = 55$ means Susan has to add 44 to $x$ to get 55, so she has to subtract 44 from 55 to find $x$.

2. a) circle “21 boys and girls”
   
   $10 + x = 21$
   
   $x = 11$

   b) circle “$x$ pencils”
   
   $x - 3 = 12$
   
   $x - 12 = 3$
   
   $x = 15$

3. a) 
   
   \[
   \begin{array}{ccc}
   5 & 4(5) + 1 & 21 \\
   6 & 4(6) + 1 & 25
   \end{array}
   \]

   5 is too low.

   b) 
   
   \[
   \begin{array}{ccc}
   4 & 3(4) - 4 & 8 \\
   5 & 3(5) - 4 & 11
   \end{array}
   \]

   5 is too high.

4. 
   
   \[
   \begin{array}{cccc}
   2 & 2 & 2 & 2 \\
   2 & 6
   \end{array}
   \]

   Amy is 8 years old.

BONUS

\[
27 - x = 19
\]

\[
27 - x + x = 19 + x
\]

\[
27 = 19 + x
\]

\[
27 - 19 = 19 + x - 19
\]

\[
8 = x
\]
1. Graph the sequence of numbers by first making a list of ordered pairs.
   a) 13, 10, 7, 4
   b) 2, 4, 10, 11
   c) 0, 3, 6, 13
     
   (1,   ), (2,   ), (3,   ), (4,   )       (1,   ), (2,   ), (3,   ), (4,   )        (1,   ), (2,   ), (3,   ), (4,   )

2. The graph shows the cost of renting a scooter from Bernard's store.
   a) What is the independent variable? _________________
      What is the dependent variable? _________________
   b) Write a list of ordered pairs for the graph.
   c) How much would you pay to ride a scooter for ...
      1 hour? ______      2 hours? ______      4 hours? ______
   d) How much do you have to pay for the scooter before
      you have even ridden it? ______

3. Use the gap in the sequence to complete the table and then find the formula.
   a) Input (n)  n × gap  Output
      1          5
      2          8
      3          11
   
   Formula: _______________

   b) Input (n)  n × gap  Output
      1          8
      2          15
      3          22
   
   Formula: _______________
Unit 12: Patterns and Algebra

Quiz (Lessons 16–20) — AB

1. a) (1, 13), (2, 10), (3, 7), (4, 4)

b) (1, 2), (2, 4), (3, 10), (4, 11)

c) (1, 0), (2, 3), (3, 6), (4, 13)

2. a)  
<table>
<thead>
<tr>
<th>Time</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

   b)  
   | (0, 3), (1, 6), (2, 9), (3, 12), (4, 15) |

   c) $6, $9, $15

   d) $3

3. a) gap: 3

<table>
<thead>
<tr>
<th>n</th>
<th>n \times \text{gap}</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>11</td>
</tr>
</tbody>
</table>

   Formula: $3n + 2$

b) gap: 7

<table>
<thead>
<tr>
<th>n</th>
<th>n \times \text{gap}</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>22</td>
</tr>
</tbody>
</table>

   Formula: $7n + 1$
1. Solve for \( x \) by doing the same thing to both sides of the equation (preserve equality). Check your answer.
   
   \[ a) \ x - 7 = 15 \quad b) \ 7x = 35 \quad c) \ x ÷ 4 = 9 \]

2. Circle the part that is larger in the story. Write the difference in two ways to make an equation and solve for \( x \).

   a) There are 16 pens.  
   - There are 4 more pencils than pens.  
   - There are \( x \) pencils.

   b) There are 9 boys.  
   - There are \( x \) girls.  
   - There are 5 more girls than boys.

   **BONUS**  
   3 more red apples than green apples  
   5 red apples  
   \( x \) green apples

3. Solve the equation using logic. Check your answer.

   \[ a) \ x + 8 = 12 \quad b) \ 9 - x = 7 \quad \text{BONUS} \quad 35 ÷ x = 7 \]

4. Dory watched TV for 40 minutes. She spent 12 minutes less on her homework than on watching TV. How much time did Dory spend on homework? Write and solve an equation.

   \[ \text{Dory's homework time} = 40 - 12 \]

5. Write an equation for the story. Replace the correct letter with the given quantity. Use \( c \) for children and \( a \) for adults.

   a) There are 3 times as many children as there are adults. There are 5 adults.  
   \[ c = ____a, \ so \ c = _______ \]

   b) There are 4 times as many adults as there are children. There are 12 adults.  
   \[ ______, \ so \ ___________ \]

   **BONUS**  
   Amit is twice as old as Jack. Clara is 3 years older than Jack. Amit is 12 years old. How old are Jack and Clara? Write equations and solve.
6. Graph the sequence of numbers by first making a list of ordered pairs.
   a) 5, 7, 9, 11
      (1, ), (2, ), (3, ), (4, )
   b) 12, 9, 6, 1
      (1, ), (2, ), (3, ), (4, )
   c) 0, 5, 7, 12
      (1, ), (2, ), (3, ), (4, )

7. The graph shows the growth of a guinea pig in the first year after birth.
   a) What is the independent variable? _________________
      What is the dependent variable? _________________
   b) Write a list of ordered pairs for the graph.
   c) What is the weight of the guinea pig after …
      6 months? _____ 3 months? _____ a year? _____
   d) What is the weight of the guinea pig at birth? _____

8. Write a formula for the number of squares in the sequence shown below.

   Figure 1  Figure 2  Figure 3

<table>
<thead>
<tr>
<th>Figure Number (n)</th>
<th>n × gap</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BONUS► Write an equation to show the relationship between x and y for Question 6.a).
   \[ y = \]
1. a) \(x - 7 + 7 = 15 + 7\)
   \(x = 22\)
   \(22 - 7 = 15\) ✓

   b) \(7x + 7 = 35 + 7\)
   \(x = 5\)
   \(7 \times 5 = 35\) ✓

   c) \(x + 4 \times 4 = 9 \times 4\)
   \(x = 36\)
   \(36 + 4 = 9\) ✓

2. a) circle "x pencils"
   \(x - 16 = 4\)
   \(x = 20\)

   b) circle "x girls"
   \(x - 9 = 5\)
   \(x = 14\)

   BONUS
   circle "5 red apples"
   \(5 - x = 3\)
   \(x = 2\)

3. a) \(x = 12 - 8\)
   \(x = 4\)
   \(4 + 8 = 12\) ✓

   b) \(9 - 7 = x\)
   \(x = 2\)
   \(9 - 2 = 7\) ✓

   BONUS
   \(x = 35 + 7\)
   \(x = 5\)
   \(35 + 5 = 7\) ✓

4. \(40 - x = 12\)
   \(x = 40 - 12\)
   \(x = 28\)
   Dory spent 28 minutes on homework.

5. a) \(3a, 3 \times 5 = 15\)

    b) \(a = 4c, 12 = 4c, c = 3\)

   BONUS
   \(A = 2J\) and \(A = 12\), so \(J = 6\)
   \(C = J + 3 = 6 + 3\), so \(C = 9\)

6. a) \((1, 5), (2, 7), (3, 9), (4, 11)\)

7. a) Age
   Mass

   b) \((0, 50), (3, 175), (6, 250), (9, 275), (12, 300)\)

   c) \(250\) g, \(175\) g, \(300\) g

8. \(\begin{array}{|c|c|c|}
\hline
n & n \times \text{gap} & \text{Output} \\
\hline
1 & 2 & 3 \\
2 & 4 & 5 \\
3 & 6 & 7 \\
\hline
\end{array}\)

BONUS
\(2x + 3\)
1. Find the area of the rectangle using the length and the width. Include the units.
   a) Length = 12 cm          b) Width = 3.2 m
   Width = 8 cm                Length = 7 m
   Area = ______________      Area = ______________

2. a) Estimate the length and the width of the rectangle in centimetres.
    Then estimate the area. Record your estimates in the table.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) Measure the length and the width of the rectangle. Record the measurements
to the nearest tenth of a centimetre in the table. Calculate the area.

3. a) Draw two rectangles on the grid with the same perimeter but
different areas.

   b) Ivan thinks that a rectangle with larger area always has a larger
   perimeter. Is he correct? Explain.

BONUS ▶ Each square on the grid is 3 cm long. Find the perimeter and
the area of the shape.
Unit 13: Measurement
Quiz (Lessons 8–10) — AB

1. a) 96 cm²
   b) 22.4 m²

2. a) Estimates will vary.
    Teacher to check.
   b) 3.3 cm, 3 cm,
      9.9 cm²

3. a) Answers will vary.
    Teacher to check.
   b) Ivan is not correct.
    Teacher to check
    that the explanation
    refers to the
    rectangles drawn in
    part a).

BONUS
   Perimeter = 54 cm
   Area = 108 cm²
1. Find the area of the rectangle using the length and the width. Include the units.
   a) Length = 11 cm  
      Width = 9 cm  
      Area = ______________
   b) Length = 3.2 m  
      Width = 5 m  
      Area = ______________
   c) Length = 2.4 cm  
      Width = 2 cm  
      Area = ______________

2. a) Estimate the length and the width of the rectangle in centimetres. 
    Then estimate the area. Record your estimates in the table.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) Measure the length and the width of the rectangle. Record the measurements to the nearest tenth of a centimetre in the table. Calculate the area.

3. a) Draw two rectangles on the grid with the same area but different perimeters.

   b) Joan thinks that a rectangle with smaller perimeter always has a smaller area. Is she correct? Explain.

BONUS► Each square on the grid is 5 m long. Find the perimeter and the area of the shape.
Unit 13: Measurement

Test (Lessons 8–10) — AB

1. a) 99 cm²
   b) 16 m²
   c) 4.8 cm²

2. a) Estimates will vary.
    Teacher to check.
   b) 4.3 cm, 2 cm,
      8.6 cm²

3. a) Rectangles will vary.
    Teacher to check.
   b) Teacher to check
      that the explanation
      refers to the
      rectangles drawn in
      part a).

BONUS

Perimeter = 110 m
Area = 400 m²
Unit 14: Number Sense

Quiz (Lessons 58–60, 63) — AB

Name: ______________________

Date: ________________

1. Find the missing term(s).
   a) 5 : 8 = ____ : 16
   b) 4 : 7 = 12 : ____
   c) 2 : 3 = 10 : ____ = ____ : 24

2. A team has 3 wins for every loss. They won 12 games. Use equivalent ratios to find how many games they lost.

BONUS ▶ How many games would they need to play to have 18 wins?

3. Is the table a ratio table? Explain how you know.
   a) 3 2
      6 6
      9 10
      12 14
   b) 4 5
      8 10
      20 25
      12 15

4. On a map, 3 cm represent 10 km in real life. If the distance between two cities is 15 cm on the map, what is the actual distance between the cities? Use a ratio table to solve.
1. a) 10  
b) 21  
c) 15, 16  
2. 4 games  
   **BONUS**  
   24 games  
3. a) It is not a ratio table because the ratios in the rows are not equivalent.  
b) It is a ratio table because the ratios in the rows are equivalent.  
4. 50 km
1. Circle whether the mark is closer to 25%, 50%, or 75%.

a) ![Mark](25% 50% 75%)

b) ![Mark](25% 50% 75%)

c) ![Mark](25% 50% 75%)

d) ![Mark](25% 50% 75%)

2. Shade the given percentage of the shape.

a) 50%

b) 25%

c) 50%

d) 25%

3. Change the numbers in the pair to fractions with the same denominator. Then write <, >, or = in the box.

a) \(\frac{1}{2}\) 39%  
b) \(\frac{3}{4}\) 78%  
c) \(\frac{3}{5}\) 60%  
d) 26% \(\frac{7}{25}\)

4. Marko has 50 stickers and 26 of them are hockey stickers. About what percentage of Marko’s stickers are hockey stickers?

BONUS: Marko has 12 baseball stickers. About what percentage of Marko’s stickers are baseball stickers?
Unit 14: Number Sense

Quiz (Lessons 64–67) — AB

1. a) 75%
   b) 50%
   c) 25%
   d) 75%

2. Teacher to check.

3. a) >
   b) <
   c) =
   d) <

4. about 50%

BONUS
   about 25%
1. In a Grade 6 class, 30% of students bike to school, $\frac{1}{5}$ of the students come to school by car or bus, and the rest walk to school. What percentage of students walk to school?

2. a) A test has 25 multiple choice questions. Alexa answered 18 questions correctly. What percentage mark did she get on the test?

b) Ben answered 17 questions correctly. What percentage mark did Ben get on the test?

**BONUS** Don wants to get 80% or higher on the test. At least how many questions does Don have to answer correctly?

3. There are 20 marbles in a jar. There are 6 red marbles, half of the marbles are green, and 20% of the marbles are blue. Complete the chart.

<table>
<thead>
<tr>
<th>Number of Marbles</th>
<th>Percentage of Marbles</th>
<th>Fraction of Marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td>$\frac{1}{2}$</td>
</tr>
<tr>
<td>Blue</td>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>

4. Look at the word “Lethbridge.”

a) What is the ratio of vowels to consonants?

b) What fraction of the letter are vowels?

c) What percentage of the letters are consonants?
Unit 14: Number Sense

Quiz (Lessons 69, 70) — AB

1. 50%

2. a) 72%
   b) 68%

   **BONUS**
   at least 20 questions

3. |   |   |   |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>30%</td>
<td>3/10</td>
</tr>
<tr>
<td>10</td>
<td>50%</td>
<td>1/2</td>
</tr>
<tr>
<td>4</td>
<td>20%</td>
<td>1/5</td>
</tr>
</tbody>
</table>

4. a) 3 : 7
   b) 3/10
   c) 70%
1. To make fruit salad, Simon needs 3 cups of bananas, 1 cup of pineapple, 1 cup of mango, and 2 cups of oranges.
   a) How many cups of fruit does Simon need in total? ____
   b) What is the ratio of cups of oranges to cups of fruit salad? ____ : ____

2. Is the table a ratio table? Explain how you know.
   a) ______________________ b) ______________________
      ______________________  ______________________
      ______________________  ______________________
      ______________________  ______________________

3. Change the numbers in the pair to fractions with the same denominator.
   Then write <, >, or = in the box.
   a) \( \frac{1}{4} \) 28%  b) 37% \( \frac{2}{5} \)  c) \( \frac{3}{4} \) 75%  BONUS ★ 67% \( \frac{2}{3} \)

4. Kate has 60 stickers and 17 of them are hockey stickers. About what percentage of Kate’s stickers are hockey stickers?

5. John has 40 marbles in a jar. \( \frac{2}{5} \) of the marbles are red, 12 are green, and 30% are blue. Complete the chart.

<table>
<thead>
<tr>
<th>Number of Marbles</th>
<th>Percentage of Marbles</th>
<th>Fraction of Marbles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td></td>
<td>( \frac{2}{5} )</td>
</tr>
<tr>
<td>Green</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>30%</td>
<td></td>
</tr>
</tbody>
</table>

BONUS ★ Josh gave some blue marbles to his sister, and then he noticed that 50% of the remaining marbles are red. How many blue marbles did Josh give?
6. Find the number of children and the number of adults in the park.
   a) There are 30 people in a park.  
     \( \frac{3}{5} \) are children. 
   b) There are 36 people in a park.  
     \( \frac{1}{6} \) are adults. 
   c) There are 28 people in a park. The ratio of children to adults is 4 : 3.
1.  
   a) 7 
   b) 2 : 7 

2.  
   a) It is a ratio table because the ratios in the rows are equivalent. 
   b) It is not a ratio table because the ratios in the rows are not equivalent. 

3.  
   a) < 
   b) < 
   c) = 

   BONUS 
   > 

4.  
   about 30% 

5.  

<table>
<thead>
<tr>
<th></th>
<th>40%</th>
<th>2/5</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>30%</td>
<td>3/10</td>
</tr>
<tr>
<td>12</td>
<td>30%</td>
<td>3/10</td>
</tr>
</tbody>
</table>

   BONUS 
   8 blue marbles 

6.  
   a) 18 children, 12 adults 
   b) 30 children, 6 adults 
   c) 16 children, 12 adults
Unit 15: Probability and Data Management

Name: ______________________
Date: ______________________

1. How many outcomes are there for the event?
   a) spinning the letter B _______
   b) spinning the letter C _______
   c) spinning the letter D _______
   d) spinning a letter in “CANADA” _______
   e) spinning one of the first 10 letters of the alphabet _______

BONUS ➤ In which part in Question 1 is the event certain? _______ Impossible? _______

2. a) How many times do you expect the spinner to land on the given colour if you spin 40 times?
   i) red ______  ii) blue ______  BONUS ➤ not blue ______

b) Simon spins the spinner 40 times. Which chart shows a result he would be most likely to get? _____

   A. Blue  |||| |||| ||  Red  ||||
      Yellow  |||| |||| ||
   B. Blue  |||| |||| |||| ||
      Red  ||
      Yellow  |||| |||| ||
   C. Blue  ||||
      Red  |||| ||||
      Yellow  |||| ||||

   c) Iva spins the spinner 100 times and gets blue 35 times. What is Iva’s experimental probability of spinning blue? Write your answer as a fraction, a decimal, and a percentage.

   ____________________________________________________________

   d) Emma and Ray play a game with the spinner. If they spin blue, Emma wins. If they spin yellow, Ray wins. Is the game fair? Explain.
Unit 15: Probability and Data Management

Quiz (Lessons 7–11) — AB

3. You are rolling a regular die with numbers from 1 to 6. Complete the table. Write the probability as a fraction with the lowest numbers.

<table>
<thead>
<tr>
<th>Event</th>
<th>Favourable Outcomes for the Event</th>
<th>Probability of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Rolling 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Not rolling 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Rolling an even number</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. a) 1  
b) 2  
c) 0  
d) 3  
e) 4  
**BONUS** e), c) 

2. a) i) 10 
   ii) 15  
**BONUS** 25 

   b) A  

   c) \[
   \frac{35}{100} = \frac{7}{20}, 0.35, 35\% \]

   d) Yes.  
   **Sample explanation:**  
The probability that  
Ray wins is \( \frac{3}{8} \), and  
the probability that  
Emma wins is also \( \frac{3}{8} \). Since the  
probabilities of both players winning are  
the same, the game  
is fair.

3. a) 3  
   \( \frac{1}{6} \)  

   b) 1, 2, 4, 5, 6  
   \( \frac{5}{6} \)  

   c) 2, 4, 6  
   \( \frac{3}{6} \) or \( \frac{1}{2} \)
Unit 15: Probability and Data Management

Test (Lessons 7–11, 14, 16, 17) — AB

1. How many outcomes are there for the event?
   a) spinning red ______
   b) spinning white ______
   c) not spinning red ______
   d) spinning a colour on the flag of Canada ______

BONUS ►

   e) Write an example of a certain event.

   f) Write an example of an impossible event.

2. a) You are rolling a regular die with numbers from 1 to 6. Complete the table.
   Write the probability as a fraction with the lowest numbers.

<table>
<thead>
<tr>
<th>Event</th>
<th>Favourable Outcomes for the Event</th>
<th>Probability of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Rolling 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Rolling a multiple of 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) If you roll the die 30 times, how many times would you expect the event to happen?

   i) Rolling 5: _____ times  
   ii) Rolling a multiple of 3: _____ times

   c) Simon rolls the die 15 times and draws a dot above each number he rolled.
   Which chart is he most likely to get? _____

   A.  
   B.  
   C.  

   d) Emma and Ray play a game with a die. If they roll 3 or 4, Emma wins.
   If they roll 1 or 6, Ray wins. Is the game fair? Explain.
Unit 15: Probability and Data Management

Test (Lessons 7–11, 14, 16, 17) — AB

3. Would you use a survey, an observation, or a measurement to answer the question?
   a) What is the longest time I can hold my breath? ________________
   b) What is the most popular movie in our class? ________________
   c) What is the most common hair colour in our class? ________________

4. The graph shows the average precipitation (rain and snow) in Victoria, BC, and in Yellowknife, YK.

   Average Precipitation by Month

   a) Alexa says that Victoria usually has more rain and snow than Yellowknife. Is she correct? Explain and improve her answer.

   b) Describe the trends you see in the graph.

   BONUS ► Write one more thing that you can infer from the graph about the climates in Victoria and in Yellowknife. Explain your thinking.
1. a) 1  
b) 2  
c) 3  
d) 3  
BONUS  
e) Sample answers: spinning red, white, or green  
f) Sample answer: spinning blue  
2. a) i) 5  
1  
6  
ii) 3, 6  
1  
3  
b) i) 5  
ii) 10  
c) B  
d) Yes, both players have the same probability (1/3) of winning.  
3. a) measurement  
b) survey  
c) observation  
4. a) Yes. Sample answer: Victoria has more snow and rain than Yellowknife during all months of the year except July, August, and September.  
b) Sample answer: The amount of precipitation in Victoria decreases from December to July and rapidly increases from September to November. It slowly grows from July to September and from November to December. The precipitation in Yellowknife slowly grows from April to August and slowly decreases from August to December.  
BONUS  
Answers will vary. Teacher to check.
Unit 16: Measurement
Quiz (Lessons 17–19, 21) — AB

1. Find the volume of the object made from cubes.
   a) 
   Volume =
   
   b) 
   Volume =

2. Find the volume of the prism.
   a) 
   Volume =
   
   b) 
   Volume =

   BONUS ►
   Volume =
   

3. A rectangular fish tank is 25 cm long and 20 cm wide. The water height is 7.5 cm. Emma placed a toy castle in the tank and the water rose to a height of 10 cm. What is the volume of the toy castle? Show your work.

4. The volume of the prism is 31.5 cm³. What is the width of the prism?
Unit 16: Measurement

Quiz (Lessons 17–19, 21) — AB

1. a) $9 \text{ cm}^3$
   b) $12 \text{ mm}^3$

2. a) $8 \text{ km} \times 3 \text{ km} \times 2 \text{ km}$
   $= 48 \text{ km}^3$
   b) $12 \text{ cm}^2 \times 3 \text{ cm}$
   $= 36 \text{ cm}^3$

BONUS

2.6 m$^2 \times 4 \text{ m}$
$= 10.4 \text{ m}^3$

3. 1250 cm$^3$
   Sample solution: The volume of the water is $25 \text{ cm} \times 20 \text{ cm} \times 7.5 \text{ cm}$
   $= 3750 \text{ cm}^3$. The volume of the water and the toy castle is $25 \text{ cm} \times 20 \text{ cm} \times 10 \text{ cm} = 5000 \text{ cm}^3$. So the volume of the toy castle is $5000 \text{ cm}^3 - 3750 \text{ cm}^3$
   $= 1250 \text{ cm}^3$

4. 2.1 cm
Unit 16: Measurement
Test (Lessons 17–19, 21) — AB

1. Find the volume of the prism.
   a)  
   \[
   \text{Volume} = \frac{18 \text{ cm} \times 9 \text{ cm} \times 6 \text{ cm}}{} = \frac{}{}
   \]
   
   BONUS
   \[
   \text{Volume} = \frac{14 \text{ m} \times 42.6 \text{ m}^2}{14 \text{ m}} = \frac{}{}
   \]

2. The volume of the prism is 41.4 m³. What is the length of the prism?
   \[
   \text{Volume} = \frac{2 \text{ m} \times 3 \text{ m} \times \text{m}}{2 \text{ m}} = \frac{}{}
   \]

3. Alexa thinks she can find the volume of the rectangular prism by multiplying the area of the front face by the width of the prism. Is she correct? Explain.
1. a) $18 \text{ cm} \times 9 \text{ cm} \times 6 \text{ cm} = 972 \text{ cm}^3$

   b) $22.3 \text{ mm}^2 \times 5 \text{ mm} = 111.5 \text{ mm}^3$

   **BONUS**

   $42.6 \text{ m}^2 \times 14 \text{ m} = 596.4 \text{ m}^3$

2. 6.9 m

3. Alexa is correct.

   Sample explanation: The area of the front face is length $\times$ height, and the volume of a rectangular prism is length $\times$ width $\times$ height, which is the same as length $\times$ height $\times$ width. The first two factors multiply to give the area of the front face, so the volume of the prism is equal to the area of the front face $\times$ width.