Unit Review

What Do I Need to Know?

✔ Adding Integers
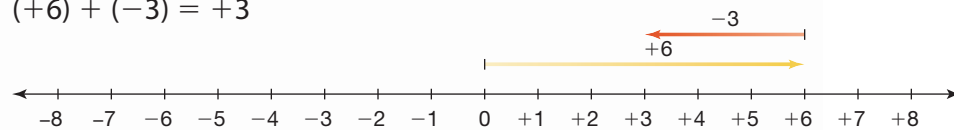
- You can use tiles to add integers.
  $(-7) + (+2) = -5$

- You can use a number line to add integers.
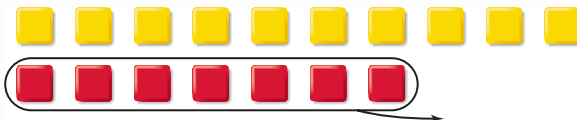 $(+6) + (-3) = +3$

✔ Subtracting Integers

- You can use tiles to subtract integers: $(+3) - (-7)$
  We need enough red tiles to take away 7 of them.
  Model $+3$:

  Since there are not enough tiles to take away -7, add 7 yellow tiles and
  7 red tiles. Now take away 7 red tiles. There are 10 yellow tiles left.

  $(+3) - (-7) = +10$

- You can also subtract by adding the opposite:
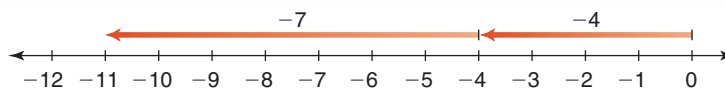 $(-5) - (-8) = (-5) + (+8)$
  $ = +3$

- You can use a number line to subtract integers.
  $(-4) - (+7)$
  Add the opposite: $(-4) + (-7)$
  Use a number line.
  $(-4) - (+7) = -11$

What Should I Be Able to Do?

1. Suppose you have 17 red tiles. How many yellow tiles would you need to model:
a) -12?
b) 0?
c) $+20$?
d) -17?
How do you know?

2. Write the integer suggested by each of the following situations. Draw yellow or red tiles to model each integer. Explain your choice.
a) The temperature rises 8°C.
b) The price of 1 L of gas falls 5¢.
c) You deposit $12 in your bank account.
d) You take 7 steps backward.
e) The time is 9 s before take-off.

3. What sum does each set of tiles model?
a) 5 red tiles and 2 yellow tiles
b) 6 yellow tiles and 5 red tiles
c) 6 yellow tiles and 7 red tiles
d) 8 yellow tiles and 8 red tiles

4. Represent each sentence with integers, then find each sum.
a) The temperature was -6°C, then rose 4°C.
b) Surinder withdrew $25, then deposited $13.
c) A stock gained $15, then lost $23.
d) A submarine was 250 m below sea level, then ascended 80 m.

5. a) Find 4 pairs of integers that have the sum -5.
b) Find 4 pairs of integers that have the sum $+4$.

6. The temperature at 6 a.m. is -10°C. During the day, the temperature rises 17°C. What is the new temperature? Write an addition equation to represent this situation. Use a vertical number line to support your answer.

7. a) Write an addition equation modelled by each number line.
b) Describe a situation that each number line could represent.

i)

ii)
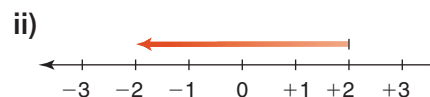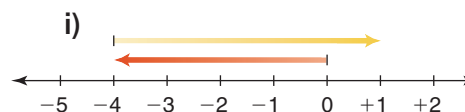
8. Use tiles to add or subtract.
a) $(-1) + (+3)$
b) $(+3) + (-4)$
c) $(-2) - (+3)$
d) $(-1) - (-3)$

2.3
2.5

9. Use a number line to add or subtract.
  a) $(-1) + (+3)$ **b)** $(+6) + (-4)$
  c) $(-4) - (+6)$ **d)** $(-5) - (-3)$

10. When you add two positive
  integers, their sum is always a
  positive integer.
  When you subtract two positive
  integers, is their difference always
  a positive integer? Explain.

11. a) What temperature is
      7°C warmer than 2°C?
  b) What temperature is
      5°C warmer than −5°C?
  c) What temperature is
      8°C cooler than 2°C?
  d) What temperature is
      4°C cooler than −3°C?

2.4
2.5

12. Use tiles or a number line to subtract.
  Write the subtraction equations.
  a) $(+4) - (+1)$ **b)** $(+5) - (-1)$
  c) $(+2) - (-2)$ **d)** $(-4) - (+1)$
  e) $(-6) - (-2)$ **f)** $(-10) - (-5)$
  g) $(-4) - (-2)$ **h)** $(-5) - (-10)$

13. Subtract.
  a) $(+7) - (+2)$ **b)** $(-7) - (+3)$
  c) $(-4) - (-5)$ **d)** $(+3) - (+3)$
  e) $(+3) - (-3)$ **f)** $(-3) - (-2)$

14. Use tiles or a number line.
  Find the difference between:
  a) a temperature of +5°C
      and −7°C
  b) an elevation of −100 m
      and +50 m

15. What is the difference in heights?
  How can you subtract to find out?
  a) A water level of 2 m below sea
      level and a water level of 7 m
      above sea level
  b) A balloon 25 m above ground
      and a balloon 11 m above ground

16. What is the difference in masses?
  How can you subtract to find out?
  a) A gain of 9 kg and a loss of 3 kg
  b) A loss of 6 kg and a loss of 5 kg

17. We measure time in hours.
  Suppose 12 noon is represented
  by the integer 0.
  a) Which integer represents 1 p.m.
      the same day?
  b) Which integer represents 10 a.m.
      the same day?
  c) Find the difference between
      these times in 2 ways.
      Show your work.

18. a) Find 5 pairs of integers with a
      difference of +6.
  b) Find 5 pairs of integers with a
      difference of −3.

What Should I Be Able to Do?

3.1

1. Write each fraction as a decimal. Identify each decimal as terminating or repeating.
a) $\frac{3}{5}$　　b) $\frac{5}{6}$　　c) $\frac{3}{8}$　　d) $\frac{3}{20}$

2. Write each decimal as a fraction or a mixed number in simplest form.
a) 0.55　　b) $1.\overline{3}$
c) 0.8　　d) $0.\overline{07}$

3.2

3. a) Use any method. Order these numbers from least to greatest. Explain the method you used.
$\frac{5}{4}, 1\frac{1}{16}, \frac{3}{6}, 1.1, \frac{5}{8}$
b) Use a different method to order the numbers, to verify your answer in part a.

4. In each ordered set, identify the number that has been placed incorrectly. Explain how you know.
a) $2\frac{1}{3}, 2.25, \frac{17}{6}, 2\frac{11}{12}$
b) $\frac{3}{5}, \frac{9}{10}, \frac{21}{20}, 1\frac{3}{15}, 1.1$

3.3

5. Two decimals have a sum of 3.41. What might the decimals be? Find as many answers as you can.

6. Asafa Powell of Jamaica holds the men's world record for the 100-m sprint, with a time of 9.77 s. Florence Griffith Joyner of the United States holds the women's world record, with a time of 10.49 s. What is the difference in their times?

3.4

7. Kiah works at the library after school. She earns $7.65/h. She usually works 15.5 h a week.
a) What does Kiah earn in a week? Use estimation to check your answer.
b) One week Kiah only works one-half the hours she usually works. What are her earnings that week?

8. Lok needs 1.2 m of fabric to make a tote bag. He finds two fabrics he likes. One fabric costs $7.59/m and the other fabric costs $6.29/m. How much money will Lok save if he buys the less expensive fabric?

3.5

9. Estimate.
Which quotients are:
 i) greater than 100?
ii) less than 50?
Calculate the quotients that are less than 50.
a) 259.8 ÷ 1.65
b) 35.2 ÷ 0.2
c) 175.08 ÷ 0.8
d) 93.8 ÷ 22.4
e) 162.24 ÷ 31.2
f) 883.3 ÷ 36.5

10. The area of a rectangle is 3.75 m². Its length is 0.6 m. What is the width of the rectangle?

3.6 **11.** Evaluate.
Use the order of operations.
a) $8.11 + 6.75 \times 5.6 - 2.12$
b) $3.78 \times 2.25 - 4.028 \div 1.52$

12. a) Simplify.
  i) $1.2 + 2.8 \times 2.1 + 3.6$
  ii) $1.2 \times 2.8 + 2.1 \times 3.6$
  iii) $1.2 \times (2.8 + 2.1) + 3.6$
  iv) $1.2 + 2.8 + 2.1 \times 3.6$
b) All the expressions in part a have the same numbers and operations. Why are the answers different?

3.7 **13.** Write each percent as a fraction and as a decimal.
Sketch number lines to illustrate.
a) 80%   **b)** 12%
c) 2%   **d)** 63%

14. Write each fraction as a decimal and as a percent.
Sketch number lines to illustrate.
a) $\frac{14}{25}$ **b)** $\frac{19}{20}$
c) $\frac{7}{50}$ **d)** $\frac{1}{5}$

3.8 **15.** There are 35 students in a Grade 7 class. On one day, 20% of the students were at a sports meet. How many students were in class?

16. Find the sale price before taxes of each item.
a) video game: 15% off $39
b) lacrosse stick: 25% off $29
c) fishing rod: 30% off $45

17. A souvenir Olympic hat sells for $29.99.
a) Russell lives in Newfoundland where there is a sales tax of 14%. Calculate the final cost of the hat in Newfoundland.
b) Jenna lives in Alberta where the GST tax is 6%. Calculate the final cost of the hat in Alberta.
c) What is the difference between the final costs of the hat in Newfoundland and Alberta?

18. Madeleine received good service in a restaurant. She left the waitress a tip of 20%. Madeleine's bill was $32.75. How much tip did the waitress receive? Show your work. Draw a number line to illustrate your answer.

Unit Review

What Do I Need to Know?

Adding and Subtracting Fractions

✔ Use models, such as Pattern Blocks, fraction circles, fraction strips, and number lines.

✔ Like denominators: add or subtract the numerators.

For example, $\frac{5}{6} + \frac{2}{6} = \frac{7}{6}$ $\frac{5}{6} - \frac{2}{6} = \frac{3}{6}$, or $\frac{1}{2}$

✔ Unlike denominators: Use a common denominator to write equivalent fractions, then add or subtract the numerators.

For example:

$$\frac{3}{4} + \frac{3}{5}$$
$$= \frac{15}{20} + \frac{12}{20}$$
$$= \frac{27}{20}, \text{ or } 1\frac{7}{20}$$

$$\frac{3}{4} - \frac{3}{5}$$
$$= \frac{15}{20} - \frac{12}{20}$$
$$= \frac{3}{20}$$

Adding and Subtracting with Mixed Numbers

✔ Use models, such as fraction circles, Pattern Blocks, and Cuisenaire rods.

✔ Add or subtract the fractions and the whole numbers separately.

For example:

$$3\frac{5}{8} + 2\frac{1}{4}$$
$$= 3 + 2 + \frac{5}{8} + \frac{1}{4}$$
$$= 5 + \frac{5}{8} + \frac{2}{8}$$
$$= 5 + \frac{7}{8}$$
$$= 5\frac{7}{8}$$

$$3\frac{2}{3} - 1\frac{3}{5}$$
$$= 3 - 1 + \frac{2}{3} - \frac{3}{5}$$
$$= 2 + \frac{10}{15} - \frac{9}{15}$$
$$= 2 + \frac{1}{15}$$
$$= 2\frac{1}{15}$$

> **Check that $\frac{2}{3} > \frac{3}{5}$.**

✔ Write each mixed number as an improper fraction, then add or subtract.

For example:

$$1\frac{5}{6} + 1\frac{2}{5}$$
$$= \frac{11}{6} + \frac{7}{5}$$
$$= \frac{55}{30} + \frac{42}{30}$$
$$= \frac{97}{30}, \text{ or } 3\frac{7}{30}$$

$$2\frac{1}{4} - 1\frac{1}{2}$$
$$= \frac{9}{4} - \frac{3}{2}$$
$$= \frac{9}{4} - \frac{6}{4}$$
$$= \frac{3}{4}$$

> **Since $\frac{1}{4} < \frac{1}{2}$, use improper fractions.**

What Should I Be Able to Do?

5.1 **1.** Add.
Use fraction circles.
Draw a picture to show each sum.
a) $\frac{8}{12} + \frac{5}{12}$ b) $\frac{3}{4} + \frac{2}{8}$
c) $\frac{1}{4} + \frac{2}{3}$ d) $\frac{1}{10} + \frac{3}{5}$

5.2 **2.** Add. Use fraction strips on number lines.
Draw a picture to show each sum.
a) $\frac{5}{9} + \frac{2}{3}$ b) $\frac{2}{3} + \frac{5}{6}$
c) $\frac{1}{6} + \frac{7}{12}$ d) $\frac{3}{8} + \frac{6}{8}$

3. Find 2 fractions that add to $\frac{5}{8}$.
Find as many pairs of fractions as you can.

5.3 **4.** Find a common denominator for each set of fractions.
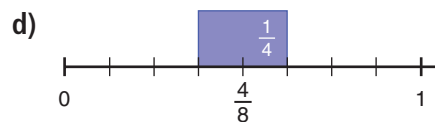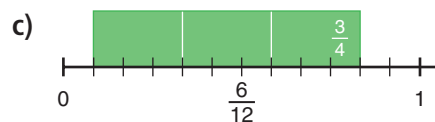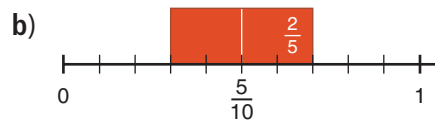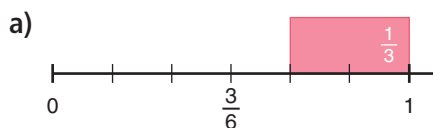Write equivalent fractions for each pair.
a) $\frac{3}{5}$ and $\frac{3}{4}$ b) $\frac{2}{5}$ and $\frac{3}{15}$
c) $\frac{4}{9}$ and $\frac{1}{2}$ d) $\frac{5}{8}$ and $\frac{1}{6}$

5. Add.
a) $\frac{1}{5} + \frac{3}{5}$ b) $\frac{1}{2} + \frac{3}{7}$
c) $\frac{2}{3} + \frac{3}{10}$ d) $\frac{3}{5} + \frac{1}{4}$

5.4 **6.** Write a subtraction equation for each picture.
a)

b)

c)

d)

7. Subtract. Draw a picture to show each difference.
a) $\frac{4}{5} - \frac{1}{5}$
b) $\frac{5}{6} - \frac{1}{3}$
c) $\frac{11}{12} - \frac{1}{2}$

8. Joyce and Javon each have the same MP3 player.
Joyce has used $\frac{7}{9}$ of her storage capacity.
Javon has used $\frac{5}{6}$ of his storage capacity.
a) Who has used more storage capacity?
b) How much more storage capacity has he or she used?
Show your work.

5.5 **9.** Subtract.
a) $\frac{9}{10} - \frac{2}{5}$ b) $\frac{7}{3} - \frac{5}{6}$
c) $\frac{8}{5} - \frac{1}{4}$ d) $\frac{9}{4} - \frac{2}{3}$

10. Write a subtraction question that has each fraction below as the answer.
The two fractions that are subtracted should have unlike denominators.

a) $\frac{1}{2}$ **b)** $\frac{3}{4}$ **c)** $\frac{1}{10}$

d) $\frac{1}{6}$ **e)** $\frac{1}{4}$

11. Anton drank $\frac{3}{4}$ bottle of water. Brad drank $\frac{7}{8}$ bottle of water.

a) Who drank more water?

b) How much more water did he drink?

12. The gas tank in Eddie's car is $\frac{5}{8}$ full. He uses $\frac{1}{4}$ tank of gas to run his errands. What fraction of a tank of gas is left?

5.6 **13.** Use fraction circles to find each sum.

a) $6\frac{1}{3} + \frac{1}{3}$ **b)** $1\frac{5}{12} + \frac{1}{6}$

c) $2\frac{3}{10} + 3\frac{1}{5}$ **d)** $5\frac{1}{4} + 1\frac{2}{5}$

14. Add.

a) $3\frac{5}{6} + \frac{4}{6}$ **b)** $4\frac{3}{8} + \frac{1}{4}$

c) $7\frac{3}{10} + 2\frac{4}{5}$ **d)** $2\frac{5}{9} + 5\frac{2}{3}$

15. Danielle mows lawns as a part-time job. On Monday, Danielle spent $1\frac{3}{4}$ h mowing lawns.
On Wednesday, she spent $1\frac{7}{8}$ h mowing lawns.
How much time did she spend mowing lawns over the 2 days?

5.7 **16.** Subtract. Draw a picture to show each difference.

a) $4\frac{1}{2} - \frac{3}{8}$ **b)** $3\frac{4}{9} - \frac{2}{3}$

c) $5\frac{5}{12} - 3\frac{5}{6}$ **d)** $4\frac{5}{8} - 2\frac{2}{3}$

17. Amelie wants to bake two kinds of muffins. One recipe calls for $1\frac{3}{4}$ cups of bananas. The other recipe calls for $1\frac{7}{8}$ cups of cranberries.

a) Which recipe uses more fruit?

b) How much more fruit does the recipe in part a use?

18. Add or subtract as indicated.

a) $2\frac{2}{3} + 1\frac{1}{2}$ **b)** $3\frac{1}{3} - 1\frac{7}{10}$

c) $2\frac{1}{6} + 4\frac{7}{8}$ **d)** $3\frac{1}{2} - 2\frac{3}{4}$

19. On a trip from Edmonton to Saskatoon, Carly drove for $2\frac{1}{2}$ h, stopped for gas and lunch, then drove for $2\frac{2}{3}$ h.
The total trip took 6 h. How long did Carly stop for gas and lunch? Express your answer as a fraction of an hour.