Chapters 5-8 Review

***MathLinks 8*, pages 324–326**

Suggested Timing
60–75 minutes

Materials
- grid paper
- ruler
- fraction strips
- centimetre cubes
- red and blue integer chips
- isometric dot paper
- calculator
- pattern blocks
- models of right prisms and cylinders

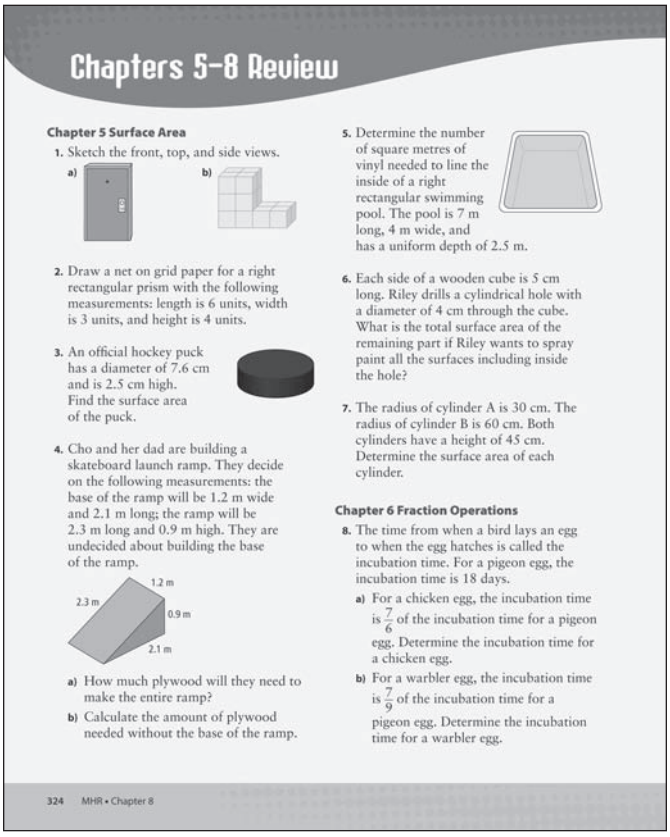
Blackline Masters
Master 7 Isometric Dot Paper
Master 8 Centimetre Grid Paper
Master 13 Pattern Blocks
Master 14 Fraction Strips
Master 20 Integer Chips

Specific Outcomes
SS2 Draw and construct nets for 3-D objects.
SS3 Determine the surface area of:
- right rectangular prisms
- right triangular prisms
- right cylinders

to solve problems.
SS4 Develop and apply formulas for determining the volume of right prisms and right cylinders.
SS5 Draw and interpret top, front and side views of 3-D objects composed of right rectangular prisms.
N6 Demonstrate an understanding of multiplying and dividing positive fractions and mixed numbers, concretely, pictorially and symbolically.
N7 Demonstrate an understanding of multiplication and division of integers, concretely, pictorially and symbolically.

Planning Notes

Consider having students work individually to complete the review, then in pairs to compare solutions. Alternatively, assign the Chapters 5–8 Review to reinforce the concepts, skills, and processes learned so far. If students encounter difficulties, have them discuss strategies with a partner. Encourage them to refer to their notes in each chapter Foldable and then to the specific section in the student resource and/or their notebooks. Once they have found a suitable strategy, have students include it in the appropriate section of their chapter Foldable.



Chapters 5–8 Review

Chapter 5 Surface Area

1. Sketch the front, top, and side views.
a) b)

2. Draw a net on grid paper for a right rectangular prism with the following measurements: length is 6 units, width is 3 units, and height is 4 units.

3. An official hockey puck has a diameter of 7.6 cm and is 2.5 cm high. Find the surface area of the puck.

4. Cho and her dad are building a skateboard launch ramp. They decide on the following measurements: the base of the ramp will be 1.2 m wide and 2.1 m long; the ramp will be 2.3 m long and 0.9 m high. They are undecided about building the base of the ramp.

1.2 m, 2.3 m, 0.9 m, 2.1 m

a) How much plywood will they need to make the entire ramp?
b) Calculate the amount of plywood needed without the base of the ramp.

5. Determine the number of square metres of vinyl needed to line the inside of a right rectangular swimming pool. The pool is 7 m long, 4 m wide, and has a uniform depth of 2.5 m.

6. Each side of a wooden cube is 5 cm long. Riley drills a cylindrical hole with a diameter of 4 cm through the cube. What is the total surface area of the remaining part if Riley wants to spray paint all the surfaces including inside the hole?

7. The radius of cylinder A is 30 cm. The radius of cylinder B is 60 cm. Both cylinders have a height of 45 cm. Determine the surface area of each cylinder.

Chapter 6 Fraction Operations

8. The time from when a bird lays an egg to when the egg hatches is called the incubation time. For a pigeon egg, the incubation time is 18 days.
a) For a chicken egg, the incubation time is $\frac{7}{6}$ of the incubation time for a pigeon egg. Determine the incubation time for a chicken egg.
b) For a warbler egg, the incubation time is $\frac{7}{9}$ of the incubation time for a pigeon egg. Determine the incubation time for a warbler egg.

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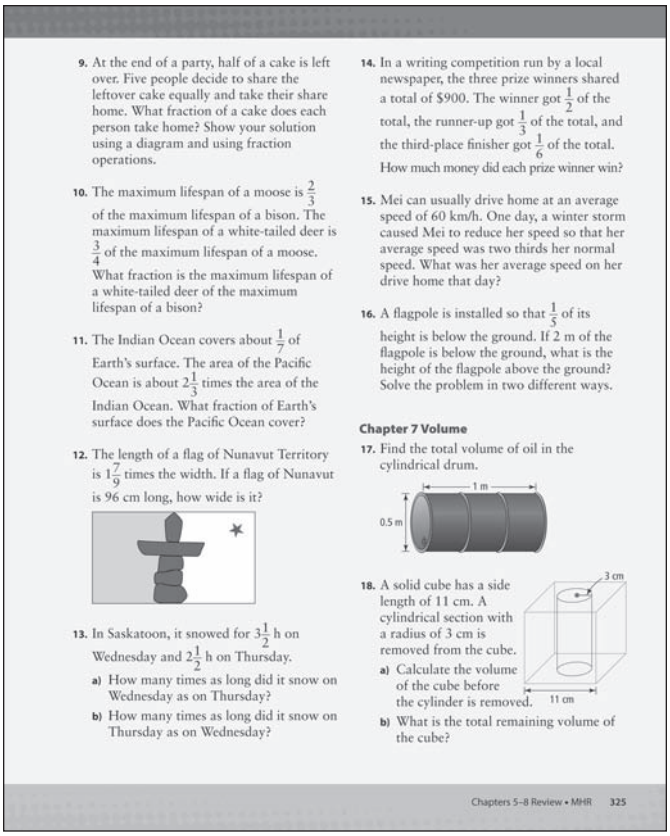

9. At the end of a party, half of a cake is left over. Five people decide to share the leftover cake equally and take their share home. What fraction of a cake does each person take home? Show your solution using a diagram and using fraction operations.

10. The maximum lifespan of a moose is $\frac{2}{3}$ of the maximum lifespan of a bison. The maximum lifespan of a white-tailed deer is $\frac{3}{4}$ of the maximum lifespan of a moose. What fraction is the maximum lifespan of a white-tailed deer of the maximum lifespan of a bison?

11. The Indian Ocean covers about $\frac{1}{7}$ of Earth's surface. The area of the Pacific Ocean is about $2\frac{1}{3}$ times the area of the Indian Ocean. What fraction of Earth's surface does the Pacific Ocean cover?

12. The length of a flag of Nunavut Territory is $1\frac{7}{9}$ times the width. If a flag of Nunavut is 96 cm long, how wide is it?

13. In Saskatoon, it snowed for $3\frac{1}{2}$ h on Wednesday and $2\frac{1}{2}$ h on Thursday.
a) How many times as long did it snow on Wednesday as on Thursday?
b) How many times as long did it snow on Thursday as on Wednesday?

14. In a writing competition run by a local newspaper, the three prize winners shared a total of $900. The winner got $\frac{1}{2}$ of the total, the runner-up got $\frac{1}{3}$ of the total, and the third-place finisher got $\frac{1}{6}$ of the total. How much money did each prize winner win?

15. Mei can usually drive home at an average speed of 60 km/h. One day, a winter storm caused Mei to reduce her speed so that her average speed was two thirds her normal speed. What was her average speed on her drive home that day?

16. A flagpole is installed so that $\frac{1}{5}$ of its height is below the ground. If 2 m of the flagpole is below the ground, what is the height of the flagpole above the ground? Solve the problem in two different ways.

Chapter 7 Volume

17. Find the total volume of oil in the cylindrical drum.

1 m, 0.5 m

18. A solid cube has a side length of 11 cm. A cylindrical section with a radius of 3 cm is removed from the cube.
a) Calculate the volume of the cube before the cylinder is removed.
b) What is the total remaining volume of the cube?

3 cm, 11 cm

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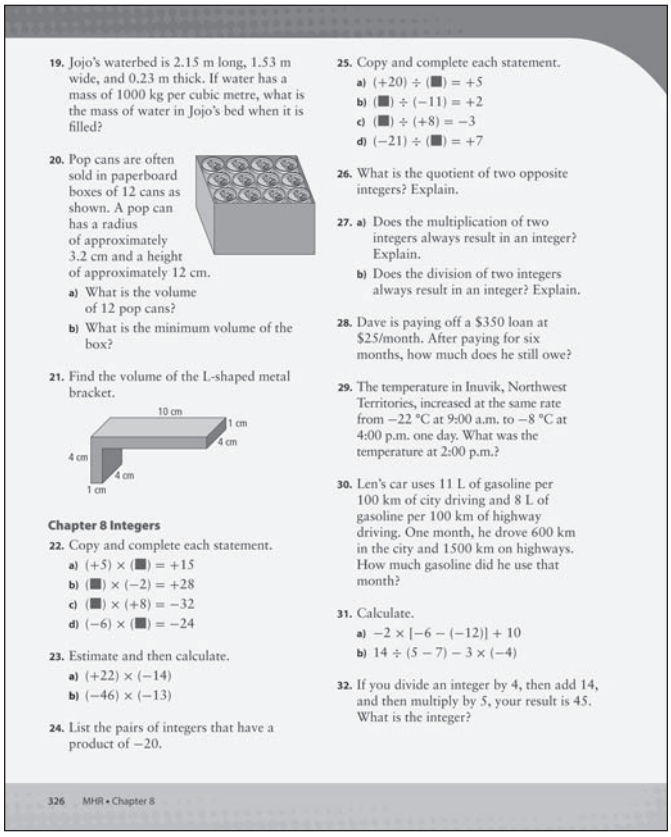
Study Guide

Question(s)	Section(s)	Refer to	The student can …
1	5.1	Example 1	✓ draw and label top, front, and side views of 3-D objects
2	5.2	Example 1	✓ draw nets for 3-D figures
3, 6, 7	5.4	Examples 1, 2	✓ find the surface area of a cylinder
4	5.3	Example 2	✓ find the surface area of a right prism
5	5.3	Example 1	✓ find the surface area of a right prism
8, 14	6.1	Example 3	✓ multiply a fraction and a whole number ✓ solve problems involving the multiplication of a fraction and a whole number
9	6.2	Examples 1, 2 Example 3	✓ divide a fraction by a whole number ✓ solve problems involving the division of fractions by whole numbers
10	6.3	Example 3	✓ multiply two proper fractions
11, 12, 15	6.4	Example 2	✓ multiply two improper fractions or mixed numbers ✓ solve problems involving the multiplication of improper fractions or mixed numbers
13	6.6	Example 2	✓ decide when to multiply fractions and when to divide fractions in solving problems
16	6.1 6.6	Example 3 Example 2	✓ solve problems involving the multiplication of a fraction and a whole number ✓ decide when to multiply fractions and when to divide fractions in solving problems
17	7.3 7.4	Example 1 Examples 1, 2, 3	✓ determine the volume of a cylinder ✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders
18, 19, 21	7.2 7.4	Example 1 Examples 1, 2, 3	✓ use a formula to determine the volume of a right rectangular prism ✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders
20	7.4	Examples 1, 2, 3	✓ solve problems involving right rectangular prisms, right triangular prisms, and right cylinders
22, 23, 24, 28	8.1 8.2	Examples 1, 2 Examples 1, 2	✓ multiply integers using integer chips ✓ determine integer products using a number line ✓ apply a sign rule when multiplying integers
25, 26, 29	8.3 8.4	Examples 1, 2 Examples 1, 2	✓ divide integers using integer chips ✓ determine integer quotients using a number line ✓ apply a sign rule when dividing integers
27	8.2 8.4	Examples 2 Examples 2	✓ apply a sign rule when multiplying integers ✓ apply a sign rule when dividing integers
30, 31, 32	8.5	Examples 1, 2	✓ apply the order of operations to solve integer problems involving integers



19. Jojo's waterbed is 2.15 m long, 1.53 m wide, and 0.23 m thick. If water has a mass of 1000 kg per cubic metre, what is the mass of water in Jojo's bed when it is filled?

20. Pop cans are often sold in paperboard boxes of 12 cans as shown. A pop can has a radius of approximately 3.2 cm and a height of approximately 12 cm.
a) What is the volume of 12 pop cans?
b) What is the minimum volume of the box?

21. Find the volume of the L-shaped metal bracket.

10 cm, 1 cm, 4 cm, 4 cm, 4 cm, 1 cm

Chapter 8 Integers

22. Copy and complete each statement.
a) $(+5) \times (\blacksquare) = +15$
b) $(\blacksquare) \times (-2) = +28$
c) $(\blacksquare) \times (+8) = -32$
d) $(-6) \times (\blacksquare) = -24$

23. Estimate and then calculate.
a) $(+22) \times (-14)$
b) $(-46) \times (-13)$

24. List the pairs of integers that have a product of -20.

25. Copy and complete each statement.
a) $(+20) \div (\blacksquare) = +5$
b) $(\blacksquare) \div (-11) = +2$
c) $(\blacksquare) \div (+8) = -3$
d) $(-21) \div (\blacksquare) = +7$

26. What is the quotient of two opposite integers? Explain.

27. a) Does the multiplication of two integers always result in an integer? Explain.
b) Does the division of two integers always result in an integer? Explain.

28. Dave is paying off a $350 loan at $25/month. After paying for six months, how much does he still owe?

29. The temperature in Inuvik, Northwest Territories, increased at the same rate from -22 °C at 9:00 a.m. to -8 °C at 4:00 p.m. one day. What was the temperature at 2:00 p.m.?

30. Len's car uses 11 L of gasoline per 100 km of city driving and 8 L of gasoline per 100 km of highway driving. One month, he drove 600 km in the city and 1500 km on highways. How much gasoline did he use that month?

31. Calculate.
a) $-2 \times [-6 - (-12)] + 10$
b) $14 \div (5 - 7) - 3 \times (-4)$

32. If you divide an integer by 4, then add 14, and then multiply by 5, your result is 45. What is the integer?

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Make available to students copies of **Master 7 Isometric Dot Paper**, **Master 8 Centimetre Grid Paper**, **Master 13 Pattern Blocks**, **Master 14 Fraction Strips**, and **Master 20 Integer Chips** for them to use during the review.

These are the minimum questions which will meet the curriculum requirements: #1–#5, #8–#11, #13, #17, #18, #20, #22, #25, #28, #29, and #31.

Meeting Student Needs

- Allow students to complete the review using any combination of oral or written answers, including diagrams.

Gifted and Enrichment

- Some students may already be familiar with the skills handled in this review. To provide extra questions, go to www.mathlinks8.ca and follow the links.

Assessment	Supporting Learning
Assessment *for* Learning	
Chapter 5–8 Review The cumulative review provides an opportunity for students to assess themselves by completing selected questions pertaining to each chapter and checking their answers against the answers in the back of the student resource.	• Have students review their notes from each chapter Foldable, the tests from each chapter and any challenges related to those chapters, identify items that they had problems with, and do the questions related to those items. Have students do at least one question that tests skills from each chapter. • Have students revisit any chapter section they are having difficulty with.
Assessment *as* Learning	
Math Learning Log Once students have completed the Chapters 5–8 Review, have them reflect on their progress and complete a journal entry for each statement: • I continue to have difficulty with ... • Here's how I plan to address what I am having difficulty with ...	• Encourage students to clear up any problems that they have had during the past four chapters. Work with them to provide the necessary coaching.