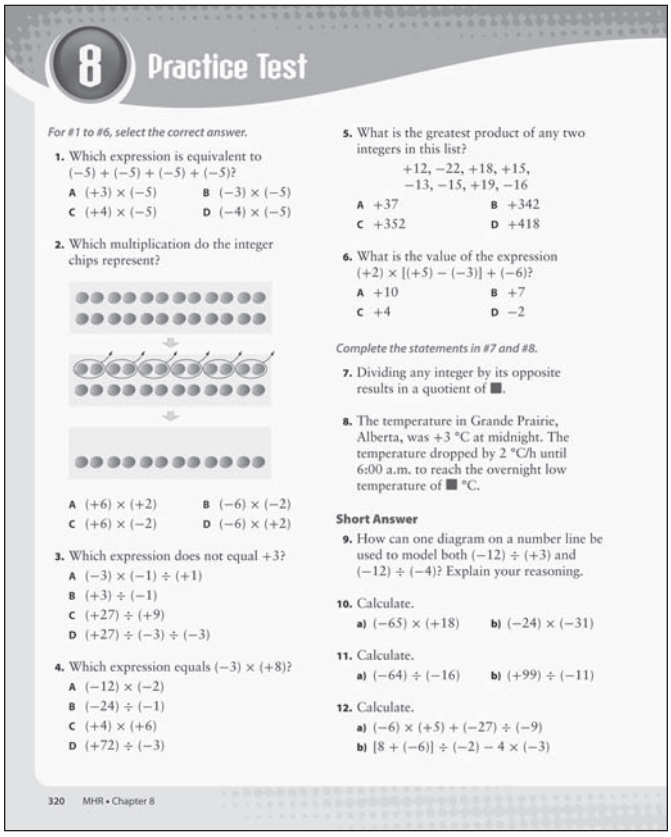
Practice Test 8



8 Practice Test

For #1 to #6, select the correct answer.

1. Which expression is equivalent to $(-5) + (-5) + (-5) + (-5)$?

A $(+3) \times (-5)$ B $(-3) \times (-5)$
C $(+4) \times (-5)$ D $(-4) \times (-5)$

2. Which multiplication do the integer chips represent?

A $(+6) \times (+2)$ B $(-6) \times (-2)$
C $(+6) \times (-2)$ D $(-6) \times (+2)$

3. Which expression does not equal $+3$?

A $(-3) \times (-1) \div (+1)$
B $(+3) \div (-1)$
C $(+27) \div (+9)$
D $(+27) \div (-3) \div (-3)$

4. Which expression equals $(-3) \times (+8)$?

A $(-12) \times (-2)$
B $(-24) \div (-1)$
C $(+4) \times (+6)$
D $(+72) \div (-3)$

5. What is the greatest product of any two integers in this list?

$+12, -22, +18, +15, -13, -15, +19, -16$

A $+37$ B $+342$
C $+352$ D $+418$

6. What is the value of the expression $(+2) \times [(+5) - (-3)] + (-6)$?

A $+10$ B $+7$
C $+4$ D -2

Complete the statements in #7 and #8.

7. Dividing any integer by its opposite results in a quotient of ■.

8. The temperature in Grande Prairie, Alberta, was $+3$ °C at midnight. The temperature dropped by 2 °C/h until 6:00 a.m. to reach the overnight low temperature of ■ °C.

Short Answer

9. How can one diagram on a number line be used to model both $(-12) \div (+3)$ and $(-12) \div (-4)$? Explain your reasoning.

10. Calculate.

a) $(-65) \times (+18)$ b) $(-24) \times (-31)$

11. Calculate.

a) $(-64) \div (-16)$ b) $(+99) \div (-11)$

12. Calculate.

a) $(-6) \times (+5) + (-27) \div (-9)$
b) $[8 + (-6)] \div (-2) - 4 \times (-3)$

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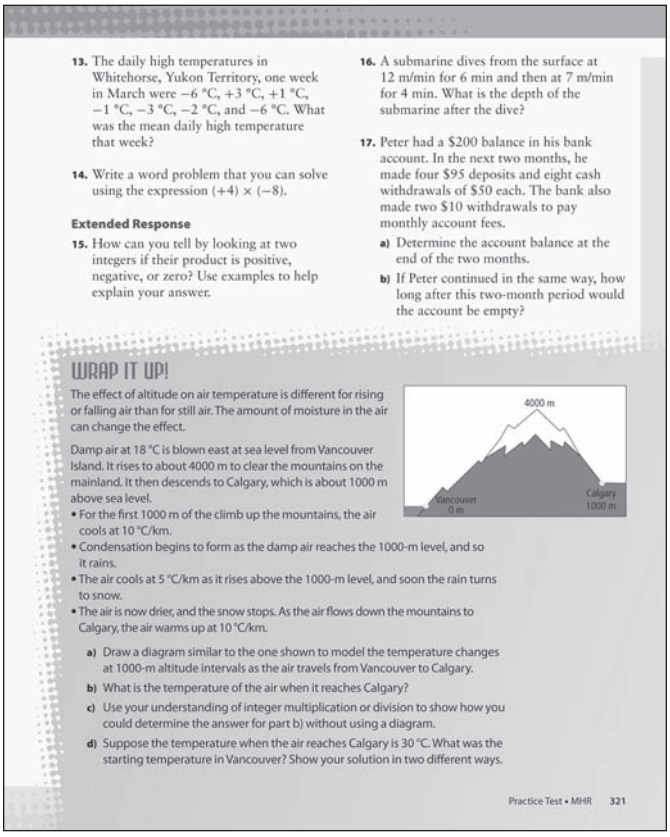

13. The daily high temperatures in Whitehorse, Yukon Territory, one week in March were -6 °C, $+3$ °C, $+1$ °C, -1 °C, -3 °C, -2 °C, and -6 °C. What was the mean daily high temperature that week?

14. Write a word problem that you can solve using the expression $(+4) \times (-8)$.

Extended Response

15. How can you tell by looking at two integers if their product is positive, negative, or zero? Use examples to help explain your answer.

16. A submarine dives from the surface at 12 m/min for 6 min and then at 7 m/min for 4 min. What is the depth of the submarine after the dive?

17. Peter had a $200 balance in his bank account. In the next two months, he made four $95 deposits and eight cash withdrawals of $50 each. The bank also made two $10 withdrawals to pay monthly account fees.

a) Determine the account balance at the end of the two months.

b) If Peter continued in the same way, how long after this two-month period would the account be empty?

WRAP IT UP!

The effect of altitude on air temperature is different for rising or falling air than for still air. The amount of moisture in the air can change the effect.

Damp air at 18 °C is blown east at sea level from Vancouver Island. It rises to about 4000 m to clear the mountains on the mainland. It then descends to Calgary, which is about 1000 m above sea level.

- For the first 1000 m of the climb up the mountains, the air cools at 10 °C/km.
- Condensation begins to form as the damp air reaches the 1000-m level, and so it rains.
- The air cools at 5 °C/km as it rises above the 1000-m level, and soon the rain turns to snow.
- The air is now drier, and the snow stops. As the air flows down the mountains to Calgary, the air warms up at 10 °C/km.

a) Draw a diagram similar to the one shown to model the temperature changes at 1000-m altitude intervals as the air travels from Vancouver to Calgary.

b) What is the temperature of the air when it reaches Calgary?

c) Use your understanding of integer multiplication or division to show how you could determine the answer for part b) without using a diagram.

d) Suppose the temperature when the air reaches Calgary is 30 °C. What was the starting temperature in Vancouver? Show your solution in two different ways.

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***MathLinks 8*, pages 320–321**

Suggested Timing
40–50 minutes

Materials
- red and blue integer chips

Blackline Masters
BLM 8–12 Chapter 8 Test

Planning Notes

Allow time for students to clarify any misunderstandings before beginning the practice test. Have students start the practice test by writing the question numbers in their notebook. Have them indicate questions with which they need a little help, a lot of help, or no help. Have students first complete the questions they know they can do, followed by those they know something about. Finally, have students do their best on the questions that they are struggling with.

This practice test can be assigned as an in-class or take-home assignment. Provide students with the number of questions they can comfortably do in one class. These are the minimum questions that will meet the related curriculum outcomes: #1–#4, #6, #9, #11–#13, and #15.

Study Guide

Question(s)	Section(s)	Refer to	The student can …
1	8.1	Explore the Math	✓ multiply integers
2	8.1	Example 1	✓ multiply integers using integer chips
3	8.2 8.4 8.5	Example 1 Example 1 Examples 1, 2	✓ apply a sign rule when multiplying integers ✓ apply a sign rule when dividing integers ✓ apply the order of operations to solve problems involving integers
4	8.2 8.4	Example 1 Example 1	✓ apply a sign rule when multiplying integers ✓ apply a sign rule when dividing integers
5, 15	8.2	Example 2	✓ apply a sign rule when multiplying integers
6, 12	8.5	Example 1	✓ apply the order of operations to solve problems involving integers
7, 11	8.4	Example 1	✓ apply a sign rule when dividing integers
8, 13, 16, 17	8.5	Example 2	✓ decide when to multiply integers and when to divide integers in solving problems ✓ apply the order of operations to solve problems involving integers
9	8.3	Example 1	✓ determine integer quotients using a number line
10	8.2	Example 1	✓ apply a sign rule when multiplying integers
14	8.2	Example 2	✓ determine integer products

Answers

Chapter 8 Practice Test

1. C **2.** C **3.** B **4.** D **5.** C **6.** A **7.** –1 **8.** –9

9. Answers may vary. Example: First, draw an arrow from zero to –12. Then, cut the arrow into three equal parts. The value of the units in each part represents the quotient for (–12) ÷ (+3). On the same diagram, divide the arrow into parts that each represent –4. Counting the number of parts gives the quotient for (–12) ÷ (–4).

10. a) –1170 **b)** 744 **11. a)** 4 **b)** –9

12. a) –27 **b)** 11 **13.** –2 °C

14. Answers may vary. Example: Faye made four withdrawals of $8 each from her bank account. How much did she withdraw in total?

15. Explanations may vary. Example: The product of two integers with the same sign is positive. The product of two integers with different signs is negative. The product of two integers will be zero if either of the integers is zero. For example, $-8 \times (-9) = +72$, $-14 \times (+5) = -70$, and $0 \times (-19) = 0$.

16. 100 m **17. a)** $160 **b)** eight months

Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 8 Self-Assessment Have students review their earlier responses in the What I Need to Work On section of their chapter Foldable.	• Before completing the Chapter 8 Practice Test, ask students to complete the What I **Learned** column from the KWL chart they started at the beginning of the chapter. Discuss how students might now answer their questions in the What I **Want** to Know column and which ones still need to be answered. • Have students use their responses on the practice test and work they completed earlier in the chapter to identify areas in which they may need to reinforce their understanding of skills or concepts. Before the chapter test, coach them in the areas in which they are having difficulties.
Assessment *of* Learning	
Chapter 8 Test After students complete the practice test, you may wish to use **BLM 8–12 Chapter 8 Test** as a summative assessment.	• Consider allowing students to use their chapter Foldable. • Consider using the Math Games on page 322 or the Challenge in Real Life on page 323 to assess the knowledge and skills of students who have difficulty with tests.