

- 2.1** 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 5c .
 c) You deposit $\$12$ in your bank account.
 d) You take 7 steps backward.
 e) The time is 9 s before take-off.

- 2.2** 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

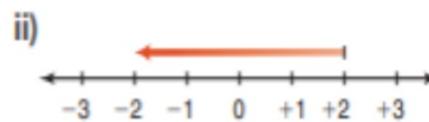
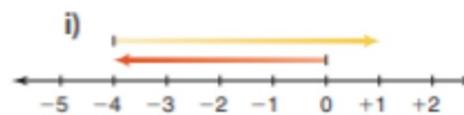
4. Represent each sentence with integers, then find each sum.
- a) The temperature was -6°C , then rose 4°C .
 b) Surinder withdrew $\$25$, then deposited $\$13$.
 c) A stock gained $\$15$, then lost $\$23$.
 d) A submarine was 250 m below sea level, then ascended 80 m.

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

- 2.3** 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.



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

2.3 **9.** Use a number line to add or subtract.

2.5

- 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 ?



14. Use tiles or a number line.

Find the difference between:

- a) a temperature of $+5^{\circ}\text{C}$ and -7°C
 b) an elevation of -100 m and $+50\text{ m}$

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?

2.4 **12.** Use tiles or a number line to subtract.

2.5

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) $(-3) - (-2)$

- 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 .