A Checking

3. Try Meagan's trick using other numbers. Is there a quick way to find the original number? Explain how it works.

4. Use Meagan's trick. Write the steps, in order, to find the original number.

- Subtract 7.
- Add -9.
- Find the opposite.
- Subtract from 12.
- The answer is $+10$.

B Practising

5. Find the original number. State the steps, in order, that you will use.

- Add -31.
- Subtract -9.
- Add 18.
- Subtract from 12.
- The answer is -12.

6. Make up a number trick that gives you the original number if you subtract 3 from the result. Your trick must have at least 4 steps.

7. Make up a number trick that always ends with the original number. Your trick must have at least three steps. One step must involve using an opposite.

8. a) Find the shorter path through the maze.

b) Explain whether working backwards is an efficient strategy to use.

9. Lloyd is lifting weights over a nine week training period. Every week, he lifts 2 kg more than he lifted the previous week. During the ninth week, he lifts 80 kg. How much was he lifting during his first week?

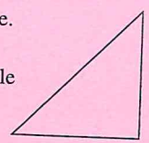
10. On Monday, Heidi bought some grapes. Each day, she ate half of them. On Friday, only eight grapes were left. How many grapes did Heidi buy?

11. During a clothing sale, the price goes down by half each day an item is not sold. If an item costs \$2.50 after 8 days, what was the original price?

12. Romona takes a shape and cuts away half of it five times. The following triangle is what remains.

a) Draw the original shape.

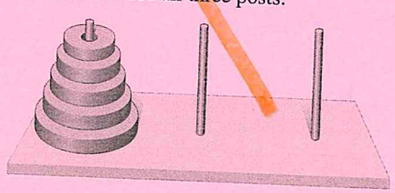
b) Draw a polygon that is symmetric. With a single line, divide it into two identical pieces.



13. Make up a problem you can solve by working backwards. Show how to solve it.

14. Consider the following diagram. Find a way to move the discs from the first post, as shown, to the third post.

- The discs on the third post must increase in size from top to bottom.
- You cannot place a larger disc on top of a smaller disc.
- You can use all three posts.



Chapter Self-Test

1. Draw a number line with integers from -5 to $+5$.

a) Mark the position of a number that is 6 more than -2.

b) Mark the position of a number that is 2 less than 1.

2. Use $<$ or $>$ to make each statement true.

a) $(+3)$ (-2)

b) (-4) (-7)

c) (-4) 0

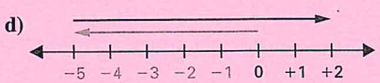
3. Write the addition question that each model represents. Calculate each sum.

a)

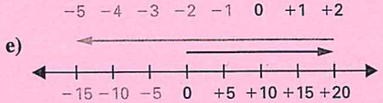
b)

c)

d)



e)



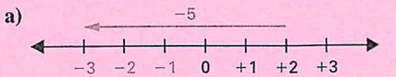
4. Use counters to model and add $(-2) + (+3)$. Explain what you did.

5. Use a number line to model and add $(+3) + (-2)$. Explain what you did.

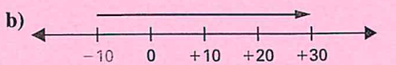
6. Use counters to model and subtract $(-3) - (+4)$. Explain what you did.

7. Write the subtraction question that each model represents.

a)

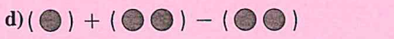


b)

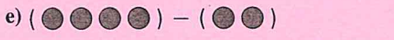


c)

d)



e)



8. What keys would you press to calculate the answer to each question using a calculator?

a) $(+125) - (-23)$

b) $(-117) - (+89)$

9. Calculate. Do not use a calculator.

a) $(+5) + (-8)$

b) $(-10) + (-3)$

c) $(-7) - (+2)$

d) $(-8) - (-4)$

e) $(-4) + (-5) + (+6)$

f) $(+10) + (-15) + (-5)$

10. Sam checks his investments every day. One Friday, he missed the news and did not know if there was a gain or a loss. His mother told him that the overall value had dropped \$210 during the week. What was his gain or loss on the Friday?

Day	Mon.	Tues.	Wed.	Thu.	Fri.
Gain/ loss (\$)	+300	−193	−25	+51	