

Name:

Date:

## **The Elves and the Shoemaker Maths Challenge**



The Shoemaker and his wife have had to solve some tricky maths problems during her adventures with the Elves. Could you have helped them? Read the questions in this booklet and see if you can work out how to solve the problems. There's lots of space on each page for you to make jottings and draw pictures to help you.

## Practice question

The shoemaker made lots of shoes to sell in his shop.

Can you count them for him?



Write the total.

shoes

1. Can you help the elves to write the missing numbers in this sequence?

|  |    |    |  |    |    |  |    |
|--|----|----|--|----|----|--|----|
|  | 40 | 43 |  | 49 | 52 |  | 58 |
|--|----|----|--|----|----|--|----|

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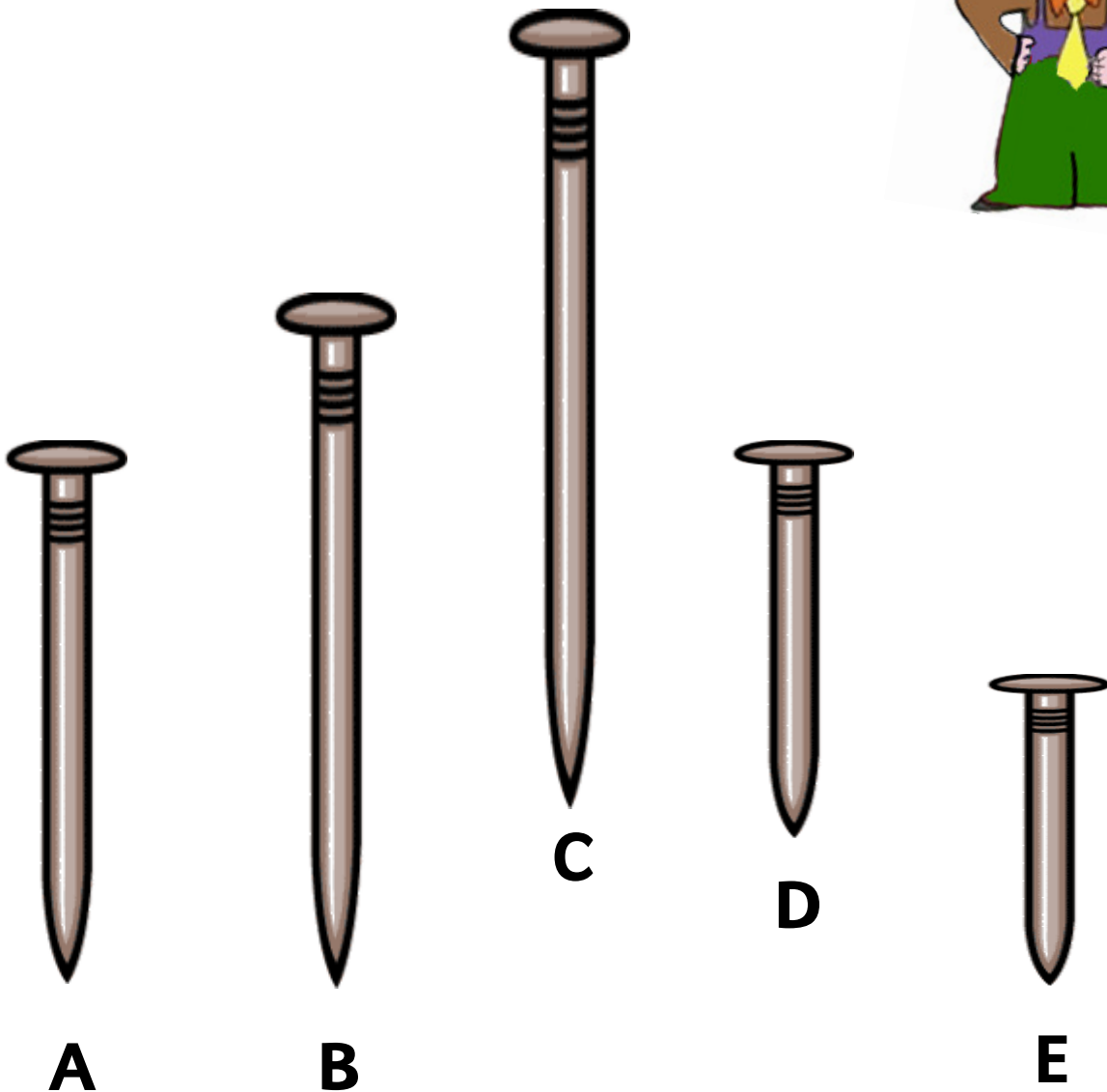
The shoemaker's wife has lots of money in her purse.

2. How much money is in her purse?



|   |
|---|
| p |
|---|

The shoemaker likes his nails to be ordered according to their length.



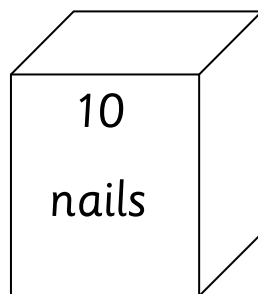
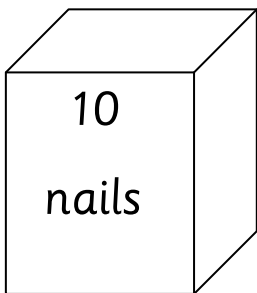
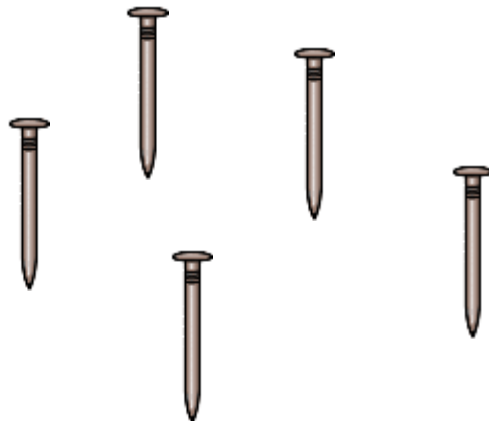
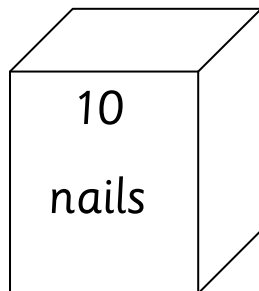
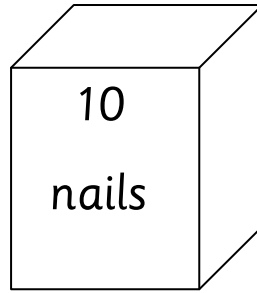
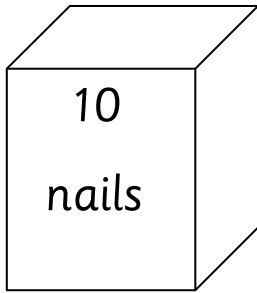
Nail C is the longest nail.

3. Can you order the rest of the nails for the shoemaker?  
You can use a ruler.

|          |  |  |  |          |
|----------|--|--|--|----------|
| longest  |  |  |  | shortest |
| <b>A</b> |  |  |  | <b>D</b> |

The shoemaker has been counting the nails he uses to make shoes. Some are in boxes of **10**.

**4.** How many nails does he have altogether?



Write the total.

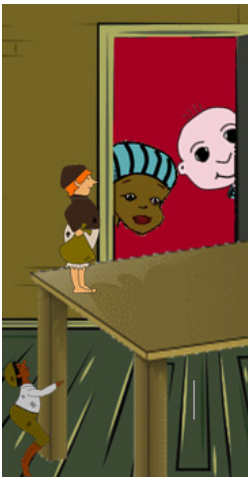
|  |
|--|
|  |
|--|

nails

The shoemaker and his wife hid in the shop at **10 minutes past 12:**



The elves appeared at **10 minutes past 3:**



**5.** How long did the shoemaker and his wife wait before the elves appeared?

|  |       |
|--|-------|
|  | hours |
|--|-------|

The Elves have been chatting to each other.



Arthur Elf

I am 15cm tall  
and I like chicken  
soup.

I am 10cm tall  
and I don't like  
chicken soup.



Eric Elf

6. Can you put the right names in the correct boxes on the diagram?

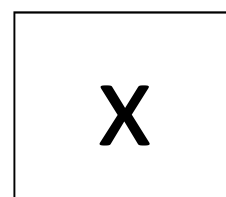
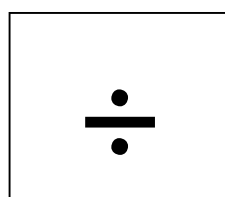
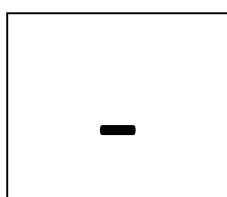
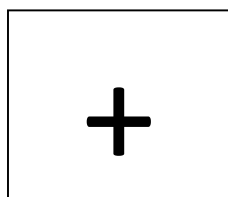
|                                       | is taller than 11<br>cm. | is <b>not</b> taller than<br>11 cm. |
|---------------------------------------|--------------------------|-------------------------------------|
| likes<br>chicken soup.                |                          |                                     |
| does <b>not</b> like<br>chicken soup. |                          |                                     |

Here is a map. It shows where Elves house is (C4). The Shoemaker's shop is in **square E1**.

7. Can you put a tick in the right box to show where the shop is?

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 5 |   |   |   |   |   |
| 4 |   |   | X |   |   |
| 3 |   |   |   |   |   |
| 2 |   |   |   |   |   |
| 1 |   |   |   |   |   |
|   | A | B | C | D | E |

Look at these signs.



8. Can you help the elves write the missing sign in each box?

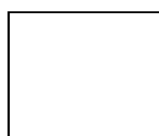


19



9 = 28

25



2 = 50

40

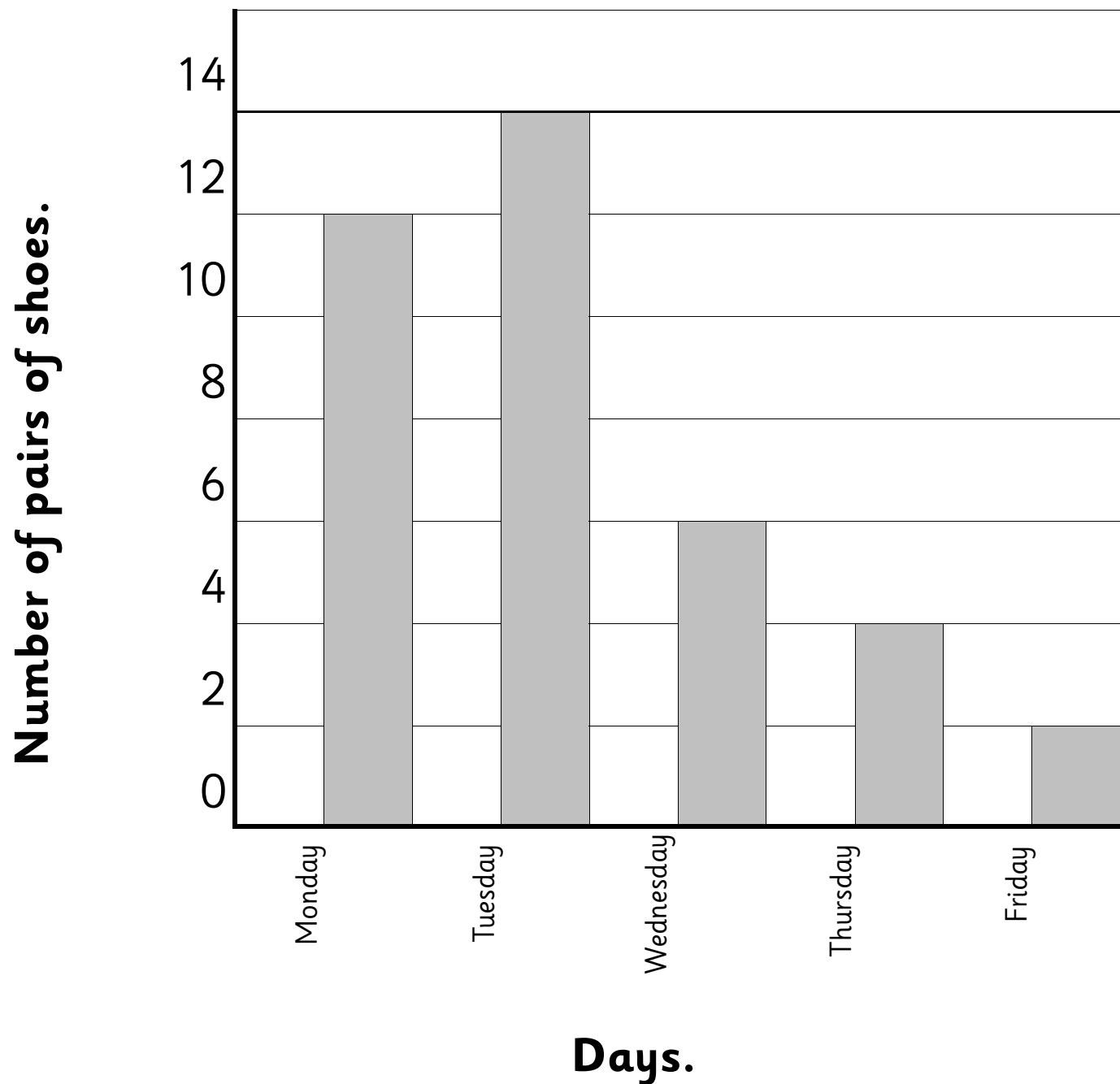


11 = 29





The shoemaker made a graph to show how many pairs of shoes he made on each day of the week.



9. How many pairs of shoes did the shoemaker make on Monday?

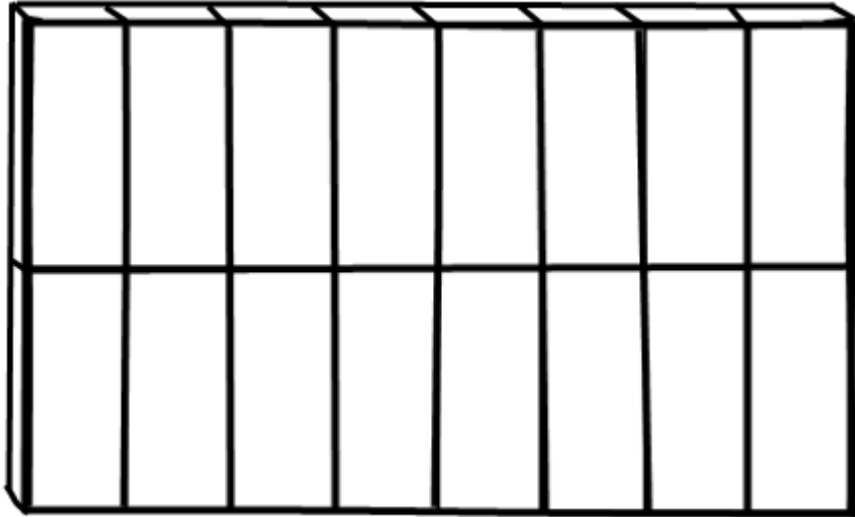
pairs

10. What was the **total** number of pairs of shoes?

pairs

The shoemaker's wife loves to eat chocolate?

She bought this bar of chocolate and ate **8** chunks.



**11.** What **fraction** of the chocolate bar did the shoemaker's wife eat?

Put a tick next to the correct fraction.

$\frac{1}{4}$  one quarter

$\frac{1}{2}$  one half

$\frac{3}{4}$  three quarters

$\frac{1}{8}$  one eighth

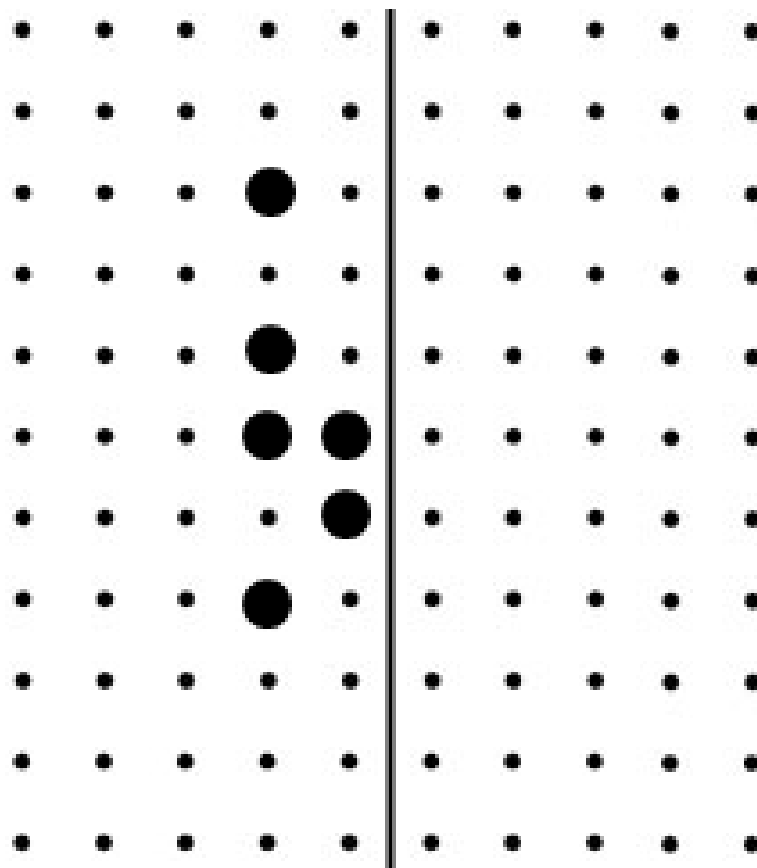
**12.** The elves cannot work out the answer to this problem.  
Can you help them?

$$62 - 32 = \boxed{\phantom{00}}$$




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**13.** Can you help the shoemaker to draw a reflection of this pattern in the mirror line?  
You can use a mirror.



mirror line

14 people are in the shoemaker's shop.

7 people leave the shop.

Then 5 more people leave the shop.



**14.** Tick (  $\checkmark$  ) the number of people who are left in the shop.

**7**

**2**

**5**

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**15.** Can you help the elves to match each of these calculations to an answer? One of them has been done for you.

$$6 \times 5$$

$$2 \times 7$$

$$10 \div 2$$

$$35 \div 5$$

30

5

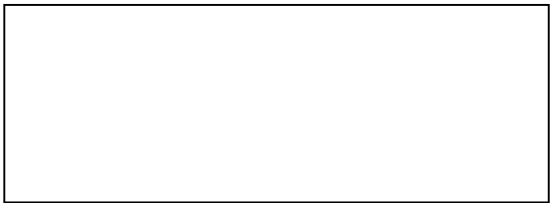
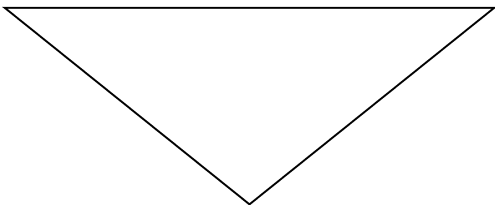
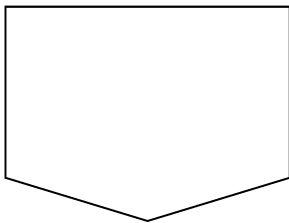
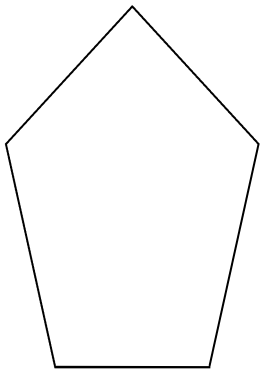
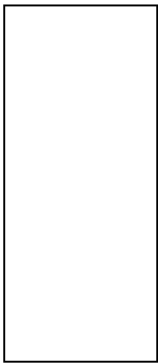
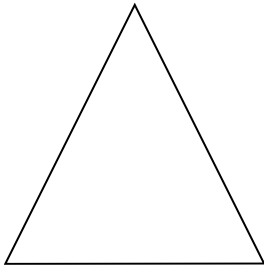
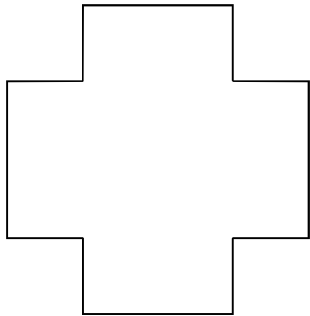
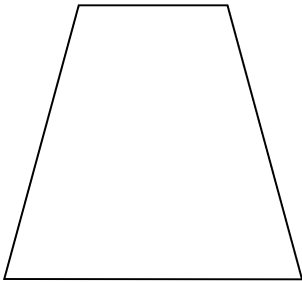
7

14

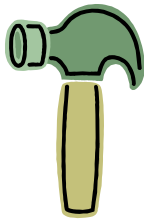
35

The elves are only allowed to eat **rectangular** biscuits.

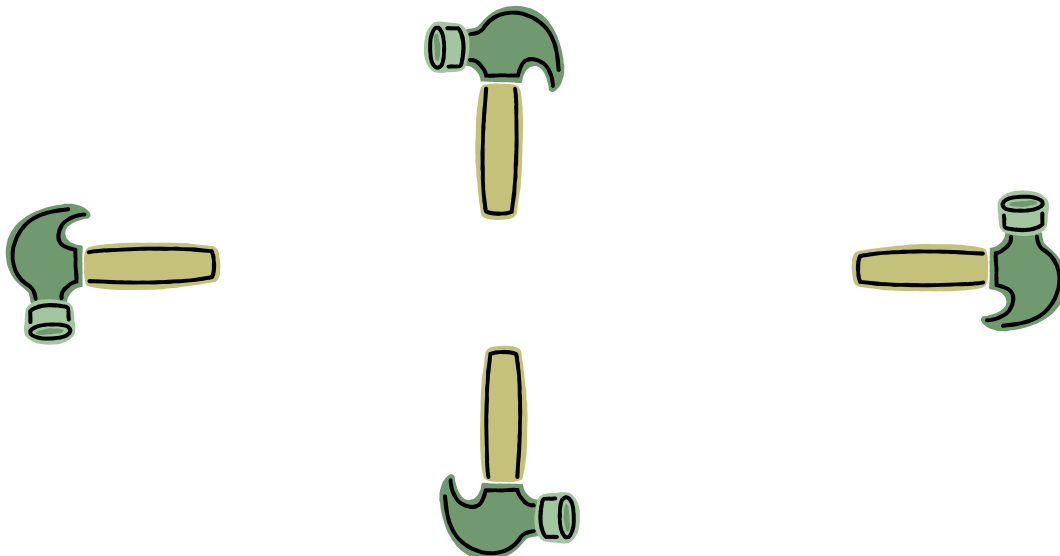
**16.** Tick the **biscuits** that the elves can eat.



Here is the shoemaker's hammer.



**17.** Tick (✓) the hammer which shows how it looks after **a quarter turn clock-wise.**



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The elves made **16** shoes during the night and the shoemaker made **10** more the next day.

**18.** How many shoes were made **altogether**?



$$16 \xrightarrow{10 \text{ more}} \boxed{\phantom{0000}}$$

**19.** Help the elves to match each addition to a multiplication.

One has been done for you.

$$2 + 2 + 2 + 2$$

$$2 \times 4$$

$$5 + 5 + 5$$

$$2 \times 3$$


$$5 \times 3$$

$$6 + 6 + 6 + 6$$

$$3 \times 5$$

$$3 + 3 + 3 + 3 + 3$$

$$5 \times 5$$

$$6 \times 4$$