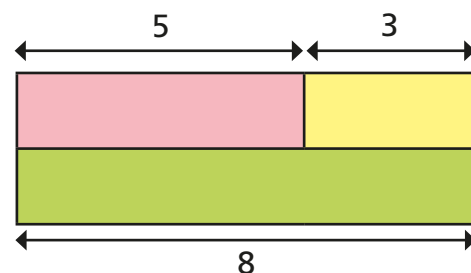


Understand and use fact families, numerically and algebraically

1 The bar model shows these facts:

$$5 + 3 = 8$$

$$8 - 3 = 5$$



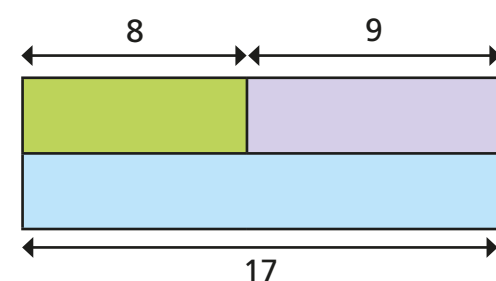
What other facts does it show?

$$3 + 5 = 8 \quad 8 = 3 + 5 \quad 8 = 5 + 3$$

$$8 - 5 = 3 \quad 3 = 8 - 5 \quad 5 = 8 - 3$$

2 Write the fact families for these bar models.

a)



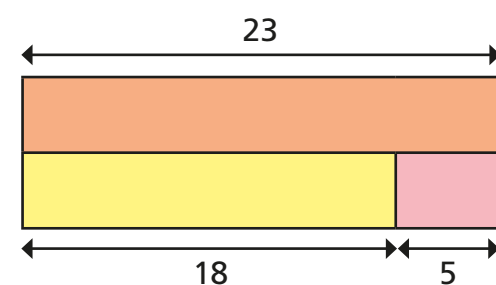
$$8 + 9 = 17 \quad 17 = 8 + 9$$

$$9 + 8 = 17 \quad 17 = 9 + 8$$

$$17 - 9 = 8 \quad 8 = 17 - 9$$

$$17 - 8 = 9 \quad 9 = 17 - 8$$

b)



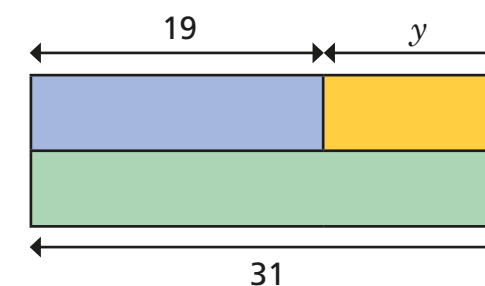
$$18 + 5 = 23 \quad 23 = 18 + 5$$

$$5 + 18 = 23 \quad 23 = 5 + 18$$

$$23 - 5 = 18 \quad 18 = 23 - 5$$

$$23 - 18 = 5 \quad 5 = 23 - 18$$

3 Annie is writing the fact family for this bar model.



She writes $y = 19 + 31$

a) Explain why Annie is incorrect.

31 is the total of 19 and y ($19 + y = 31$)

b) Write the fact family for this bar model.

$$19 + y = 31$$

$$31 = 19 + y$$

$$y + 19 = 31$$

$$31 = y + 19$$

$$31 - y = 19$$

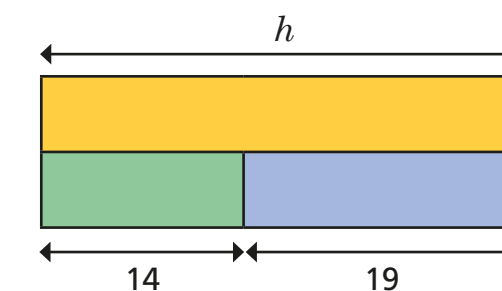
$$19 = 31 - y$$

$$31 - 19 = y$$

$$y = 31 - 19$$

4 Write the fact family for each bar model.

a)



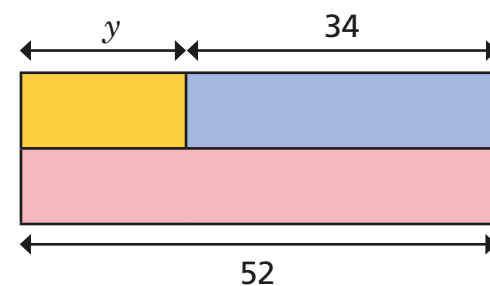
$$14 + 19 = h \quad h = 14 + 19$$

$$19 + 14 = h \quad h = 19 + 14$$

$$h - 19 = 14 \quad 14 = h - 19$$

$$h - 14 = 19 \quad 19 = h - 14$$

b)



$$y + 34 = 52 \quad 52 = y + 34$$

$$34 + y = 52 \quad 52 = 34 + y$$

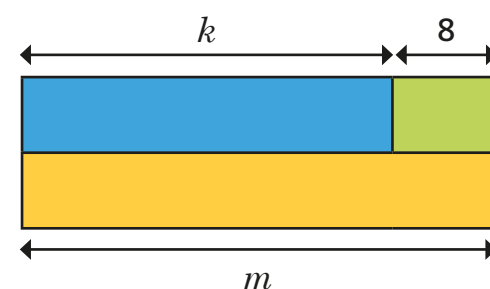
$$52 - y = 34 \quad 34 = 52 - y$$

$$52 - 34 = y \quad y = 52 - 34$$

5

Write two addition facts and two subtraction facts for each bar model.

a)



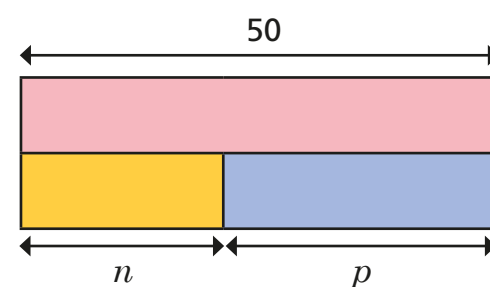
$$k + 8 = m$$

$$8 + k = m$$

$$m - k = 8$$

$$m - 8 = k$$

b)



$$n + p = 50$$

$$p + n = 50$$

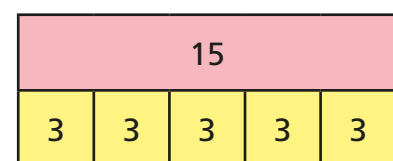
$$50 - n = p$$

$$50 - p = n$$

6

Use the bar models to complete the facts.

a)



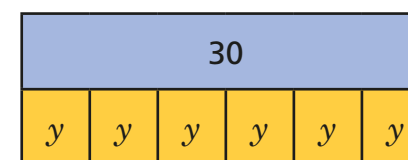
$$15 = 3 \times 5$$

$$15 = 5 \times 3$$

$$15 \div 3 = 5$$

$$15 \div 5 = 3$$

b)



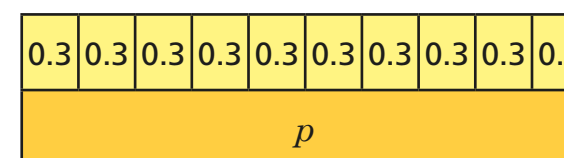
$$30 = 6 \times y$$

$$30 = y \times 6$$

$$30 \div y = 6$$

$$30 \div 6 = y$$

c)



$$0.3 \times 10 = p$$

$$p \times 0.3 = 10$$

$$p \div 0.3 = 10$$

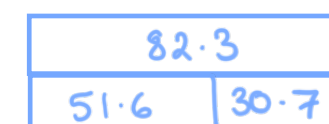
$$p \div 10 = 0.3$$

7

Draw a bar model to represent each fact.

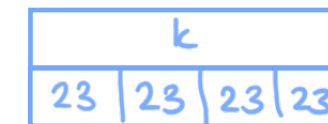
a)

$$51.6 = 82.3 - 30.7$$



c)

$$k = 23 \times 4$$



b)

$$g + 98 = 152$$



d)

$$\frac{108}{6} = w$$



What other related facts can you see from your bar models?