# Sharing fractions – Student work samples (NM1331)

**Halving strategy**

a) Tipene has 16 play station games. He gives half ($\frac{1}{2}$) of them to his brother.

Show how to work out how many games he gives his brother.

half gavee 16 is 8

Answer: 8

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

$\frac{1}{2}$ of 24 is 12 $-\frac{1}{2}$ = 0x4ore 4

Answer: 6

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

$\frac{1}{2}$ of 24 = 12    So whats
$\frac{1}{2}$ of 12 = 6    So    6+6+6+6 =
24    So the    theanAnswer Answer: 6

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

half of 24 is twelve
and. half of twelve
is six six so one $\frac{1}{4}$ of 24 is six.
$\frac{1}{4}$ of 24 is six
Answer: 6

## Dividing by the denominator

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

$24 \div 4 = 6 \quad 24 \div 6 = 4$

$6 \times 4 = 24$
$4 \times 6 = 24$

Answer: _6_

## Repeated subtraction

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

$24 - 12 = 12 \quad 12 - 6 = 6$

Answer: _6_

## Repeated addition

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

$6 + 6 + 6 + 6 = 24$

$\frac{1}{4}$ of 24's 6

$= 6$

Answer: _6_

c) Ihipera has 15 picture books. She gives a third ($\frac{1}{3}$) of them away to a friend.

Show how to work out how many picture books she gives away.

$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$ whole

$3 \times 5 = 15$
$5 + 5 + 5 = 15$

Answer: _5_

## Reverse multiplication

a) Tipene has 16 play station games. He gives half ($\frac{1}{2}$) of them to his brother.

Show how to work out how many games he gives his brother.

> 2 x 8 = 16. So $\frac{1}{2}$ of 16 is 8.
>
> Answer: __8__

c) Ihipera has 15 picture books. She gives a third ($\frac{1}{3}$) of them away to a friend.

Show how to work out how many picture books she gives away.

> the answer is 5 because there are 3 5s in 15.
>
> Answer: __5__

## Visual mapping or grouping strategy

c) Ihipera has 15 picture books. She gives a third ($\frac{1}{3}$) of them away to a friend.

Show how to work out how many picture books she gives away.

> The Freind $\frac{1}{3}$ 5 | Ihipera $\frac{2}{3}$ 10 | $\frac{3}{3}$ 15   Answer: __5__

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.
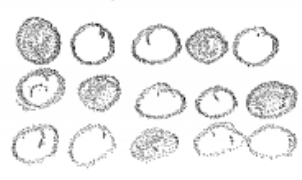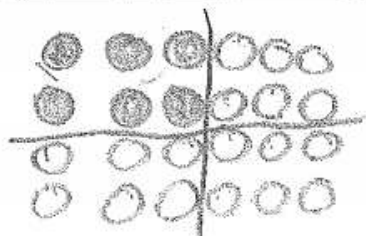
Show how to work out how many sweets she gives him.

> Answer: __6__

a) Tipene has 16 play station games. He gives half $\left(\frac{1}{2}\right)$ of them to his brother.

Show how to work out how many games he gives his brother.

8 +8 =16

|||||||   ||||||

Answer: 8

c) Ihipera has 15 picture books. She gives a third $\left(\frac{1}{3}\right)$ of them away to a friend.

Show how to work out how many picture books she gives away.

Shad 1 out of eVey 3

Answer: 5

b) Jodi buys 24 sweets. She gives a quarter $\left(\frac{1}{4}\right)$ of them to her brother.

Show how to work out how many sweets she gives him.

Slit it in half and slit that half in half

Answer: 6

c) Ihipera has 15 picture books. She gives a third $\left(\frac{1}{3}\right)$ of them away to a friend.

Show how to work out how many picture books she gives away.

5×3=15

Answer: 5

**Other whole number misconceptions (not recognising the part-whole nature of fractions)**

a) Tipene has 16 play station games. He gives half ($\frac{1}{2}$) of them to his brother.

Show how to work out how many games he gives his brother.

$\frac{1}{2} \longrightarrow 1 + 1 = ②$

Answer: _2_

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

$\frac{1}{4} \longrightarrow 1 + 3 = ④$

Answer: _4_

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

qua r er is aubot 4 he
qive him 4

Answer: _4_

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

24 – 4 = 20
She has 20
Left

Answer: _20_

c) Ihipera has 15 picture books. She gives a third ($\frac{1}{3}$) of them away to a friend.

Show how to work out how many picture books she gives away.

a third is aubot 3 or 4

Answer: 3

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

3 4 — 3 = ☐

20 + 1 = ☐

Answer: 21

a) Tipene has 16 play station games. He gives half ($\frac{1}{2}$) of them to his brother.

Show how to work out how many games he gives his brother.

16 — $\frac{1}{2}$ = 8

Answer: 8

**Other insufficient strategies**

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

becuse half of 20 is ten so a qwater must be 4

Answer: 4

) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

12+12=24    24-12=12
12+4= 16

Answer: 16

b) Jodi buys 24 sweets. She gives a quarter ($\frac{1}{4}$) of them to her brother.

Show how to work out how many sweets she gives him.

12 + 6 is 18

Answer: 18

c) Ihipera has 15 picture books. She gives a third ($\frac{1}{3}$) of them away to a friend.

Show how to work out how many picture books she gives away.

$\frac{1}{3}$ Third        8+1=(9)   3 x Third = 9
and 3x3=9

Answer: 9

c) Ihipera has 15 picture books. She gives a third ($\frac{1}{3}$) of them away to a friend.

Show how to work out how many picture books she gives away.

15 - 2 = ▢
12 + 1 =

Answer: 13