

# The Missing-Air Method

Figure out what the resident drank by looking at the air that is now in the cup, below where the drink started.



**8 oz cup**  
Served **full**.  
Start = **240 mL**



**4 oz cup · ¾ full**  
Dashed line at ¾.  
Start = **90 mL**  
Marks: thirds of 30 mL



**4 oz cup · ½ full**  
Dashed line at ½.  
Start = **60 mL**  
Marks: quarters of 15 mL

**Why isn't every small cup full?** A resident with weak hands, tremors or poor dexterity may spill a full cup. Spills can mean burns from hot drinks, wet skin or a slippery floor. So staff may fill the small cup only ½ or ¾ of the way. You still have to record exactly what the resident drank, starting from where the cup was filled, not from the rim.

## THE FORMULA

**Starting mL × part drank = mL drank**

"Part drank" is how much of the starting drink is now air.

- 1. Find the start.** 8 oz cup: the rim (240 mL). 4 oz cup: the dashed line. Check which line: ¾ full = 90 mL, ½ full = 60 mL.
- 2. Look at the air** between the start and the top of the liquid. That space is what was drunk.
- 3. Name the part.** The 8 oz cup and the ½-full cup are marked in quarters. The ¾-full cup is marked in thirds.
- 4. Multiply** the starting mL by the part. For thirds, divide by 3 first:  $90 \div 3 = 30$  mL per third. Add all cups for the total.



**8 oz coffee**  
¾ is air → ¾ drank  
 $240 \times \frac{3}{4} = 180$  mL



**4 oz juice · ⅔ full**  
2 of 3 thirds are air  
 $90 \times \frac{2}{3} = 60$  mL  
(30 + 30)



**4 oz juice · ½ full**  
½ of the juice is air  
 $60 \times \frac{1}{2} = 30$  mL

| Part drank                | ¼  | ⅓  | ½   | ⅔  | ¾   | All |
|---------------------------|----|----|-----|----|-----|-----|
| <b>8 oz cup</b> (240)     | 60 | —  | 120 | —  | 180 | 240 |
| <b>4 oz · ¾ full</b> (90) | —  | 30 | —   | 60 | —   | 90  |
| <b>4 oz · ½ full</b> (60) | 15 | —  | 30  | —  | 45  | 60  |

**Watch out:** on a 4 oz cup, measure from the dashed line, never the rim. Never multiply by 120. Nobody was served 120 mL.

# Missing-Air • Worksheet 1: 8 oz Cups

Name \_\_\_\_\_ Date \_\_\_\_\_

Each 8 oz cup was served full, so it starts at **240 mL**. Long marks are quarters; short marks are eighths. Starred cups are a challenge.

1



Water

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

2



Coffee

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

3



Iced tea

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

4



Milk

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

5



Lemonade

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

6 ★



Water

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

7 ★



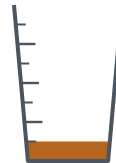
Coffee

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

8 ★



Iced tea

Starting amount: **240 mL**

Part drank (air): \_\_\_\_\_

$240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mL}$

# Missing-Air • Worksheet 2: 4 oz Cups

Name \_\_\_\_\_ Date \_\_\_\_\_

Some 4 oz cups were served  $\frac{3}{4}$  full (90 mL) and some  $\frac{1}{2}$  full (60 mL). Find the dashed line first and write the starting amount.  $\frac{3}{4}$ -full cups are marked in thirds;  $\frac{1}{2}$ -full cups in quarters.

1



Apple juice

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

2



Orange juice

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

3



Cranberry

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

4



Grape juice

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

5



Apple juice

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

6



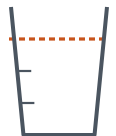
Orange juice

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

7



Cranberry

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

8



Grape juice

Starting amount: \_\_\_\_\_ mL

Part drank (air): \_\_\_\_\_

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_ mL

## Think it through

1. Cups 3 and 7 both came back empty. Why don't they count the same?

2. For cup 4, a classmate wrote  $120 \times \frac{2}{3} = 80$  mL. What went wrong, and what is correct?

# Missing-Air · Worksheet 3: Residents

Name \_\_\_\_\_ Date \_\_\_\_\_

Each tray had a full 8 oz cup (240 mL) and a 4 oz cup. Find where the 4 oz cup started, work each cup with the formula, then add.

## Resident A

BREAKFAST



Coffee  
8 oz · full



Orange juice  
4 oz cup

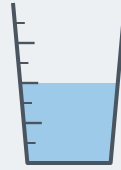
8 oz:  $240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

4 oz: start  $\underline{\hspace{1cm}}$  mL  $\times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Resident B

LUNCH



Water  
8 oz · full



Apple juice  
4 oz cup

8 oz:  $240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

4 oz: start  $\underline{\hspace{1cm}}$  mL  $\times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Resident C

DINNER



Milk  
8 oz · full



Cranberry  
4 oz cup

8 oz:  $240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

4 oz: start  $\underline{\hspace{1cm}}$  mL  $\times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Resident D

SNACK



Iced tea  
8 oz · full



Grape juice  
4 oz cup

8 oz:  $240 \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

4 oz: start  $\underline{\hspace{1cm}}$  mL  $\times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$  mL

Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Word problems

- Over the day shift, Resident A drank her breakfast fluids (above),  $\frac{3}{4}$  of a full 8 oz cup of water at 10:00, and all of a 4 oz juice cup served  $\frac{1}{2}$  full at 2:00. Total for the shift =  $\underline{\hspace{1cm}}$  mL
- A 4 oz juice cup served  $\frac{3}{4}$  full comes back empty. A classmate records 120 mL. What is correct, and why?  

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- Which resident above would you mention to the nurse, and why?  

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# The Estimation Method

Round what the resident drank to the closest mark, then read the mL from the chart. No multiplying.



**8 oz cup**  
Served **full**.  
Start = **240 mL**



**4 oz cup · ¾ full**  
Dashed line at ¾.  
Start = **90 mL**  
Marks: thirds of 30 mL



**4 oz cup · ½ full**  
Dashed line at ½.  
Start = **60 mL**  
Marks: quarters of 15 mL

**Why isn't every small cup full?** A resident with weak hands, tremors or poor dexterity may spill a full cup. Spills can mean burns from hot drinks, wet skin or a slippery floor. So staff may fill the small cup only ½ or ¾ of the way. You still have to record exactly what the resident drank, starting from where the cup was filled, not from the rim.

## THE METHOD

### Closest mark drank → read the mL from the chart

Marks always split the **starting** amount, not the whole cup.

- Find the start.** 8 oz cup: the rim (240 mL). 4 oz cup: the dashed line, ¾ full = 90 mL or ½ full = 60 mL.
- Compare the liquid to the marks.** How much of the starting drink is gone?
- Round** to the closest mark: quarters on full and ½-full cups, thirds on ¾-full cups.
- Read the mL** for that cup from the chart. Add all cups for the total.



**8 oz coffee**  
A little under ¼ left → closest is ¾ drank  
Chart: **180 mL**



**4 oz · ¾ full**  
Just over ⅓ left → closest is ⅔ drank  
Chart: **60 mL**



**4 oz · ½ full**  
Half the juice gone → ½ drank  
Chart: **30 mL**

| Drank                     | ¼  | ⅓  | ½   | ⅔  | ¾   | All |
|---------------------------|----|----|-----|----|-----|-----|
| <b>8 oz cup (240)</b>     | 60 | —  | 120 | —  | 180 | 240 |
| <b>4 oz · ¾ full (90)</b> | —  | 30 | —   | 60 | —   | 90  |
| <b>4 oz · ½ full (60)</b> | 15 | —  | 30  | —  | 45  | 60  |

**Watch out:** between two marks? Pick the closer one. Use the row for how the cup was served. A third of a ¾-full cup is 30 mL; a quarter of a ½-full cup is 15 mL.

# Estimation • Worksheet 1: 8 oz Cups

Name \_\_\_\_\_ Date \_\_\_\_\_

Each 8 oz cup started full (**240 mL**). Marks show quarters. Circle the closest amount drank, then write the mL. Starred cups fall between marks.

**Chart:**  $\frac{1}{4} = 60 \text{ mL}$  ·  $\frac{1}{2} = 120 \text{ mL}$  ·  $\frac{3}{4} = 180 \text{ mL}$  · All = 240 mL

**1**



Water

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**2**



Coffee

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**3**



Iced tea

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**4**



Milk

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**5**



Lemonade

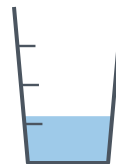
Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**6 ★**



Water

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**7 ★**



Coffee

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

**8 ★**



Iced tea

Starting amount: **240 mL**

Closest drank (circle):

**0**  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{3}{4}$  **All**

mL drank: \_\_\_\_\_ mL

# Estimation • Worksheet 2: 4 oz Cups

Name \_\_\_\_\_ Date \_\_\_\_\_

Some cups were served  $\frac{3}{4}$  full (90 mL) and some  $\frac{1}{2}$  full (60 mL). Circle the start, circle the closest amount drank, then use the chart. Starred cups fall between marks.

$\frac{3}{4}$  full (90):  $\frac{1}{3} = 30 \cdot \frac{2}{3} = 60 \cdot \text{All} = 90$      $\frac{1}{2}$  full (60):  $\frac{1}{4} = 15 \cdot \frac{1}{2} = 30 \cdot \frac{3}{4} = 45 \cdot \text{All} = 60$

1



Apple juice

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

2



Orange juice

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

3



Cranberry

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

4



Grape juice

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

5 ★



Apple juice

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

6 ★



Orange juice

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

7



Cranberry

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

8 ★



Grape juice

Start (circle): 90 mL 60 mL

Closest drank (circle):

0  $\frac{1}{4}$   $\frac{1}{3}$   $\frac{1}{2}$   $\frac{2}{3}$   $\frac{3}{4}$  All

mL drank: \_\_\_\_\_ mL

## Think it through

1. On cup 2,  $\frac{1}{3}$  drank is 30 mL. On cup 8,  $\frac{1}{4}$  drank is 15 mL. Why is the "piece" a different size?

2. Cup 5 falls between two marks. What do you record, and why do we round?

# Estimation • Worksheet 3: Residents

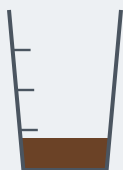
Name \_\_\_\_\_ Date \_\_\_\_\_

Each tray had a full 8 oz cup (240 mL) and a 4 oz cup. Find where the 4 oz cup started, round each cup to the closest mark, use the chart, then add.

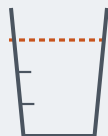
$\frac{3}{4}$  full (90):  $\frac{1}{3} = 30 \cdot \frac{2}{3} = 60 \cdot \text{All} = 90$      $\frac{1}{2}$  full (60):  $\frac{1}{4} = 15 \cdot \frac{1}{2} = 30 \cdot \frac{3}{4} = 45 \cdot \text{All} = 60$

## Resident A

BREAKFAST



Coffee  
8 oz • full



Orange juice  
4 oz cup

8 oz: closest \_\_\_\_\_ drank → \_\_\_\_\_ mL

4 oz: start \_\_\_\_\_ mL • closest \_\_\_\_\_ → \_\_\_\_\_ mL

Total fluid intake: \_\_\_\_\_ mL

## Resident B

LUNCH



Water  
8 oz • full



Apple juice  
4 oz cup

8 oz: closest \_\_\_\_\_ drank → \_\_\_\_\_ mL

4 oz: start \_\_\_\_\_ mL • closest \_\_\_\_\_ → \_\_\_\_\_ mL

Total fluid intake: \_\_\_\_\_ mL

## Resident C

DINNER



Milk  
8 oz • full



Cranberry  
4 oz cup

8 oz: closest \_\_\_\_\_ drank → \_\_\_\_\_ mL

4 oz: start \_\_\_\_\_ mL • closest \_\_\_\_\_ → \_\_\_\_\_ mL

Total fluid intake: \_\_\_\_\_ mL

## Resident D

SNACK



Iced tea  
8 oz • full



Grape juice  
4 oz cup

8 oz: closest \_\_\_\_\_ drank → \_\_\_\_\_ mL

4 oz: start \_\_\_\_\_ mL • closest \_\_\_\_\_ → \_\_\_\_\_ mL

Total fluid intake: \_\_\_\_\_ mL

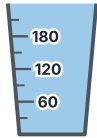
## Word problems

- Over the day shift, Resident A drank her breakfast fluids (above), about  $\frac{3}{4}$  of a full 8 oz cup of water at 10:00, and all of a 4 oz juice cup served  $\frac{1}{2}$  full at 2:00. Total for the shift = \_\_\_\_\_ mL
- A 4 oz cup was served  $\frac{3}{4}$  full. A classmate saw  $\frac{2}{3}$  of the juice gone and recorded 80 mL. What is correct, and why?

- Which resident above would you mention to the nurse, and why?

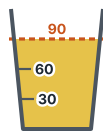
# The Fluid Left & Subtract Method

Read how much is still in the cup, then take it away from what was served.



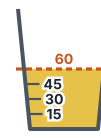
## 8 oz cup

Served **full**. Start = **240 mL**  
Each small mark = 30 mL



## 4 oz · ¾ full

Start = **90 mL**  
Marks every 30 mL



## 4 oz · ½ full

Start = **60 mL**  
Marks every 15 mL

**Why isn't every small cup full?** A resident with weak hands, tremors or poor dexterity may spill a full cup. Spills can mean burns from hot drinks, wet skin or a slippery floor. So staff may fill the small cup only ½ or ¾ of the way. You still have to record exactly what the resident drank, starting from where the cup was filled, not from the rim.

## THE FORMULA

# Starting mL – mL left in the cup = mL drank

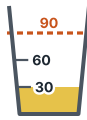
The amount left is NOT the intake. Always subtract.

- 1. Know the start.** 8 oz cup = 240 mL. 4 oz cup = the number on the dashed line: 90 mL (¾ full) or 60 mL (½ full).
- 2. Read what is left.** Find the top of the liquid and read the closest mL mark.
- 3. Subtract** the amount left from the starting amount.
- 4. Add all cups** together for the total fluid intake.



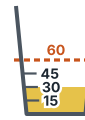
## 8 oz coffee

At the 60 mark → 60 left  
 $240 - 60 = 180$  mL



## 4 oz · ¾ full

At the 30 mark → 30 left  
 $90 - 30 = 60$  mL



## 4 oz · ½ full

At the 30 mark → 30 left  
 $60 - 30 = 30$  mL

**Same cup, different start.** A 4 oz cup with 30 mL left:  
served ¾ full →  $90 - 30 = 60$  mL drank  
served ½ full →  $60 - 30 = 30$  mL drank  
That's why you always check the dashed line first.

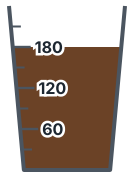
**Watch out:** on the 4 oz cup, start from 90 or 60, never 120. Check: drank + left must equal the start.

# Fluid Left • Worksheet 1: 8 oz

Name \_\_\_\_\_ Date \_\_\_\_\_

Each 8 oz cup started full (**240 mL**). Marks are labeled in mL; each small mark is 30 mL. Read what is **left**, then use: **240** – **mL left** = **mL drank**. Starred cups land on a small mark.

**1**



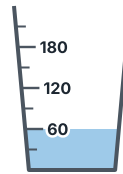
Coffee

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**2**



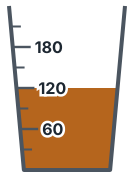
Water

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**3**



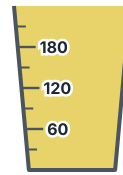
Iced tea

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**4**



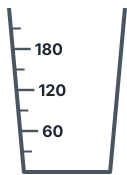
Lemonade

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**5**



Milk

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**6 ★**



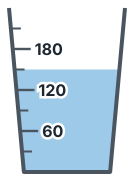
Coffee

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**7 ★**



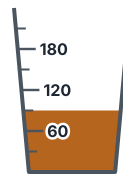
Water

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

**8 ★**



Iced tea

Starting amount: **240 mL**

mL left in cup: \_\_\_\_\_ mL

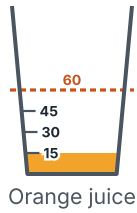
240 – \_\_\_\_\_ = \_\_\_\_\_ mL drank

# Fluid Left • Worksheet 2: 4 oz

Name \_\_\_\_\_ Date \_\_\_\_\_

Some 4 oz cups were served  $\frac{3}{4}$  full (90 mL) and some  $\frac{1}{2}$  full (60 mL). The number on the dashed line is the start. Read what is **left**, then subtract.

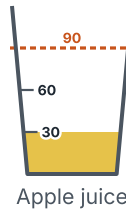
1



Orange juice

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

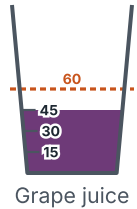
2



Apple juice

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

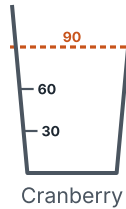
3



Grape juice

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

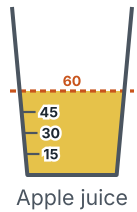
4



Cranberry

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

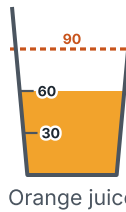
5



Apple juice

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

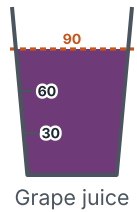
6



Orange juice

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

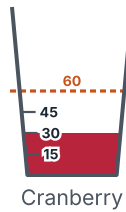
7



Grape juice

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

8



Cranberry

Starting amount: \_\_\_\_\_ mL  
mL left in cup: \_\_\_\_\_ mL  
\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ mL drank

## Think it through

1. For cup 1, a classmate recorded 15 mL as the intake. What mistake did they make, and what is correct?

2. Cup 7 is still at the dashed line. What do you record as intake, and how can you check your subtraction?

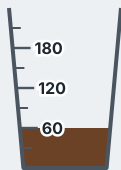
# Fluid Left • Worksheet 3: Residents

Name \_\_\_\_\_ Date \_\_\_\_\_

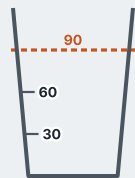
Each tray had a full 8 oz cup (240 mL) and a 4 oz cup. Read what is left in each cup, subtract from the start, then add.

## Resident A

BREAKFAST



Coffee  
8 oz · full



Orange juice  
4 oz cup

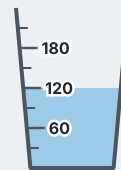
8 oz:  $240 - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

4 oz:  $\underline{\hspace{1cm}} - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

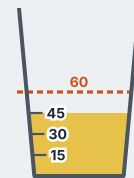
Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Resident B

LUNCH



Water  
8 oz · full



Apple juice  
4 oz cup

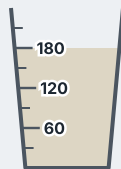
8 oz:  $240 - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

4 oz:  $\underline{\hspace{1cm}} - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

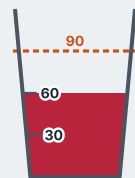
Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Resident C

DINNER



Milk  
8 oz · full



Cranberry  
4 oz cup

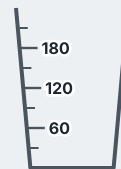
8 oz:  $240 - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

4 oz:  $\underline{\hspace{1cm}} - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

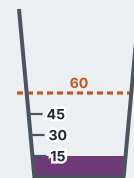
Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Resident D

SNACK



Iced tea  
8 oz · full



Grape juice  
4 oz cup

8 oz:  $240 - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

4 oz:  $\underline{\hspace{1cm}} - \underline{\hspace{1cm}}$  left =  $\underline{\hspace{1cm}}$  mL

Total fluid intake:  $\underline{\hspace{1cm}}$  mL

## Word problems

1. Over the day shift, Resident A drank her breakfast fluids (above). At 10:00 her full 8 oz water cup came back with 60 mL left, and at 2:00 her 4 oz juice cup, served  $\frac{1}{2}$  full, came back empty. Total for the shift =  $\underline{\hspace{1cm}}$  mL

2. A 4 oz juice cup served  $\frac{3}{4}$  full comes back empty. A classmate writes  $120 - 0 = 120$  mL. What is correct, and why?

3. Which resident above would you mention to the nurse, and why?

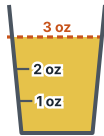
# The Ounce Method

Figure out how many ounces were drunk, then convert to mL. **1 oz = 30 mL.**



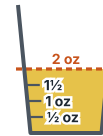
## 8 oz cup

Served **full**. Starts with **8 oz** (240 mL)  
Each mark = 1 oz



## 4 oz · ¾ full

Starts with **3 oz** (90 mL)  
Each mark = 1 oz



## 4 oz · ½ full

Starts with **2 oz** (60 mL)  
Each mark = ½ oz

**Why isn't every small cup full?** A resident with weak hands, tremors or poor dexterity may spill a full cup. Spills can mean burns from hot drinks, wet skin or a slippery floor. So staff may fill the small cup only ½ or ¾ of the way. You still have to record exactly what the resident drank, starting from where the cup was filled, not from the rim.

## THE FORMULA

**Starting oz – oz left = oz drank → oz drank × 30 = mL**

Always finish by converting to mL. I&O is recorded in mL.

**1. Know the start in ounces.** 8 oz cup = 8 oz. 4 oz cup: the dashed line, ¾ full = 3 oz or ½ full = 2 oz.

**2. Read the ounces left** using the marks.

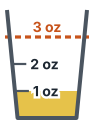
**3. Subtract** to get ounces drank.

**4. Multiply by 30** to change ounces to mL. Add all cups for the total.



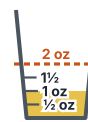
## 8 oz coffee

2 oz left →  $8 - 2 = 6$  oz  
 $6 \times 30 = 180$  mL



## 4 oz · ¾ full

1 oz left →  $3 - 1 = 2$  oz  
 $2 \times 30 = 60$  mL



## 4 oz · ½ full

1 oz left →  $2 - 1 = 1$  oz  
 $1 \times 30 = 30$  mL

| oz | ½  | 1  | 1½ | 2  | 3  | 4   | 6   | 8   |
|----|----|----|----|----|----|-----|-----|-----|
| mL | 15 | 30 | 45 | 60 | 90 | 120 | 180 | 240 |

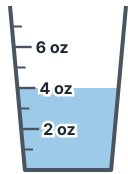
**Watch out:** a 4 oz cup served ¾ full has only 3 oz (90 mL max). Served ½ full, only 2 oz (60 mL max). Multiply by 30, never 60.

# Ounce Method • Worksheet 1: 8 oz Cups

Name \_\_\_\_\_ Date \_\_\_\_\_

Each 8 oz cup started full (**8 oz**). Each mark is 1 oz. Read the ounces left, subtract to find ounces drank, then convert: **oz drank × 30 = mL**. Starred cups land on an odd ounce.

**1**



Water

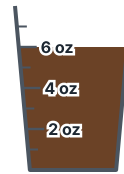
Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**2**



Coffee

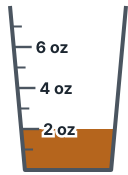
Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**3**



Iced tea

Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**4**



Milk

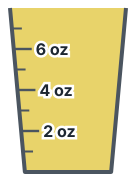
Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**5**



Lemonade

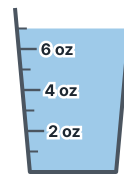
Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**6 ★**



Water

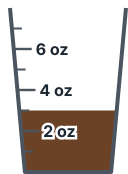
Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**7 ★**



Coffee

Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

**8 ★**



Iced tea

Starting: **8 oz**

Oz left: \_\_\_\_\_ oz

8 - \_\_\_\_\_ = \_\_\_\_\_ oz drank

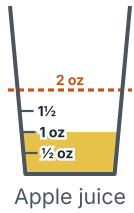
\_\_\_\_\_ oz × 30 = \_\_\_\_\_ mL

# Ounce Method • Worksheet 2: 4 oz Cups

Name \_\_\_\_\_ Date \_\_\_\_\_

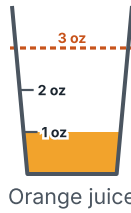
Some 4 oz cups were served  $\frac{3}{4}$  full (3 oz) and some  $\frac{1}{2}$  full (2 oz). The dashed line shows the start. Find ounces drank, then convert: **oz drank**  $\times$  30 = mL.

1



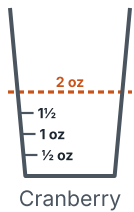
Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

2



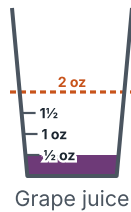
Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

3



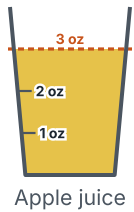
Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

4



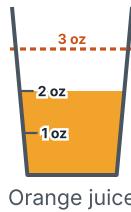
Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

5



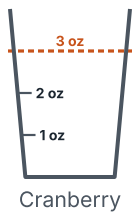
Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

6



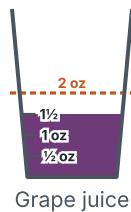
Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

7



Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

8



Starting: \_\_\_\_\_ oz  
 Oz left: \_\_\_\_\_ oz  
 \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ oz drank  
 \_\_\_\_\_ oz  $\times$  30 = \_\_\_\_\_ mL

## Think it through

1. Every one of these cups can hold 4 oz. Why do some start at 3 oz and some at 2 oz?

2. For cup 4, a classmate wrote  $1\frac{1}{2}$  oz  $\times$  60 = 90 mL. What went wrong, and what is correct?

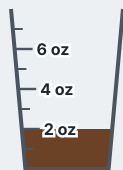
# Ounce Method • Worksheet 3: Residents

Name \_\_\_\_\_ Date \_\_\_\_\_

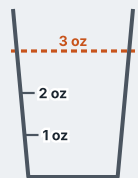
Each tray had a full 8 oz cup (8 oz) and a 4 oz cup served  $\frac{3}{4}$  full (3 oz) or  $\frac{1}{2}$  full (2 oz). Find ounces drank in each cup, multiply by 30, then add.

## Resident A

BREAKFAST



Coffee  
8 oz · full



Orange juice  
4 oz cup

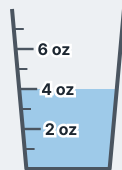
8 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

4 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

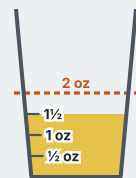
Total fluid intake: \_\_\_\_\_ mL

## Resident B

LUNCH



Water  
8 oz · full



Apple juice  
4 oz cup

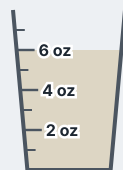
8 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

4 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

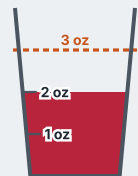
Total fluid intake: \_\_\_\_\_ mL

## Resident C

DINNER



Milk  
8 oz · full



Cranberry  
4 oz cup

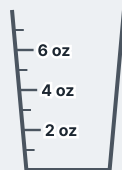
8 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

4 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

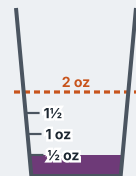
Total fluid intake: \_\_\_\_\_ mL

## Resident D

SNACK



Iced tea  
8 oz · full



Grape juice  
4 oz cup

8 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

4 oz: \_\_\_\_\_ oz drank  $\times 30 =$  \_\_\_\_\_ mL

Total fluid intake: \_\_\_\_\_ mL

## Word problems

- Over the day shift, Resident A drank her breakfast fluids (above). At 10:00 her full 8 oz water cup came back with 2 oz left, and at 2:00 her 4 oz juice cup, served  $\frac{1}{2}$  full, came back empty. Total for the shift = \_\_\_\_\_ mL
- A 4 oz juice cup served  $\frac{3}{4}$  full comes back empty. A classmate writes  $4 \text{ oz} \times 30 = 120 \text{ mL}$ . What is correct, and why?  
\_\_\_\_\_
- Which resident above would you mention to the nurse, and why?  
\_\_\_\_\_