

Tanks & Pipes

ANSWERS

Bands 1, 2, 3, 4, 5 · 10 questions · Free sample

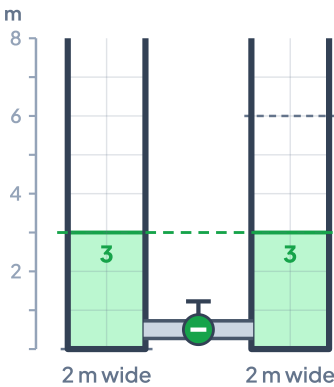
Each picture asks its own question. A tank takes the litres still needed divided by the net flow (taps minus drains) to fill, and a pipe that splits sends half to each branch. Tanks joined by an open valve settle at one level: all the water over all the width.

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1 Band 1

Answer: B

The valve opens. How high does the water settle?



Water: $2 \times 6 = 12$ squares
Width: $2 + 2 = 4$, so $12 \div 4 = 3$ m

- A 1 m

Not the level the water settles at
- B 3 m

The answer
- C 5 m

Not the level the water settles at
- D 6 m

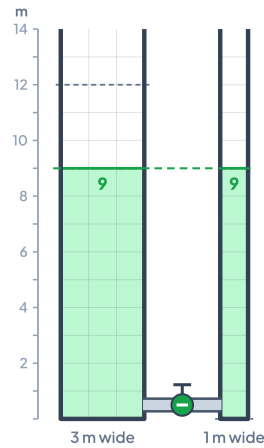
The level it started at: nothing moved

2

Band 1

Answer: A

The valve opens. How high does the water settle?



Water: $3 \times 12 = 36$ squares
Width: $3 + 1 = 4$, so $36 \div 4 = 9$ m

A

9 m

The answer

B

11 m

Not the level the water settles at

C

12 m

The level it started at: nothing moved

D

18 m

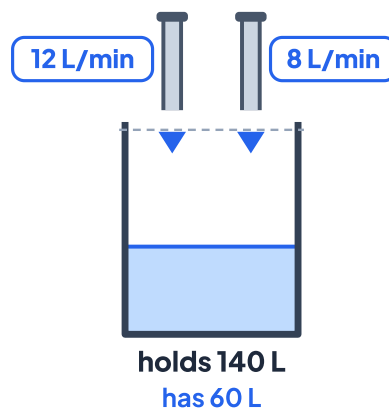
All the water shared by the number of tanks, not by their width

3

Band 2

Answer: C

How long until the tank is full?



$$(140 - 60) \text{ L} \div (12 + 8) \text{ L/min} = 4 \text{ min}$$

A

2 min

Not what the litres and the flows give

B

3 min

Not what the litres and the flows give

C

4 min

The answer

D

10 min

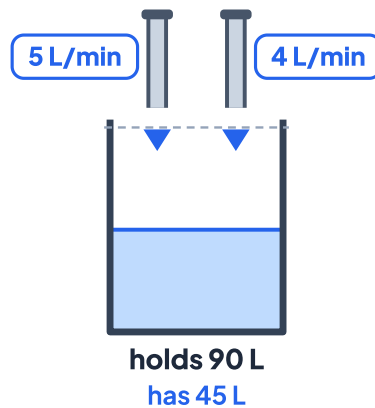
Only the slower tap counted

4

Band 2

Answer: C

How long until the tank is full?



$$(90 - 45) \text{ L} \div (5 + 4) \text{ L/min} = 5 \text{ min}$$

A 2 min

Not what the litres
and the flows give

B 3 min

Not what the litres
and the flows give

C 5 min

The answer

D 9 min

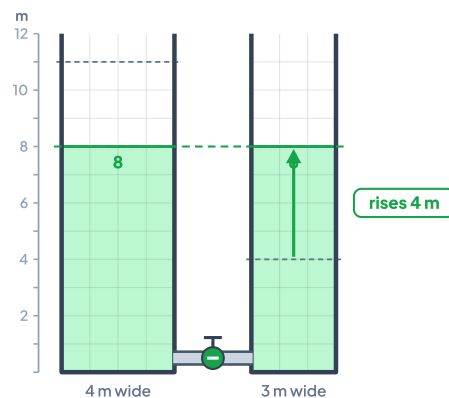
Only the faster tap
counted

5

Band 3

Answer: C

The valve opens. How far does the water in the right tank rise?



Water: $4 \times 11 + 3 \times 4 = 56$ squares
Width: $4 + 3 = 7$, so $56 \div 7 = 8$ m
It rises $8 - 4 = 4$ m

A 2 m

Not the level the
water settles at

B 3 m

How far the other
tank falls: a different
width, a different
amount

C 4 m

The answer

D 8 m

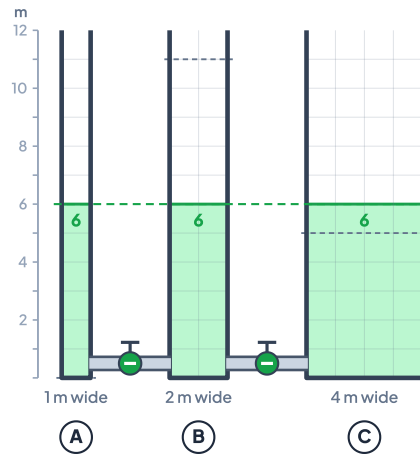
Where the water
settles, not how far it
rises

6

Band 3

Answer: B

Both valves open. How high does the water settle?



Water: $2 \times 11 + 4 \times 5 = 42$ squares
 Width: $1 + 2 + 4 = 7$, so $42 \div 7 = 6$ m

(A)

4 m

Not the level the
water settles at

(B)

6 m

The answer

(C)

11 m

The higher of the
levels

(D)

14 m

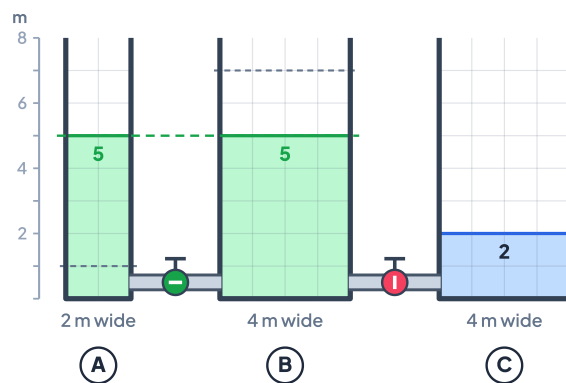
All the water shared
by the number of
tanks, not by their
width

7

Band 4

Answer: C

The valve between A and B opens. How high does the water settle?



Tanks A and B: $2 \times 1 + 4 \times 7 = 30$ squares
 Width: $2 + 4 = 6$, so $30 \div 6 = 5$ m
 Tank C is not joined: it does not count

(A)

3 m

Not the level the
water settles at

(B)

4 m

The average of the
levels, the widths
ignored

(C)

5 m

The answer

(D)

7 m

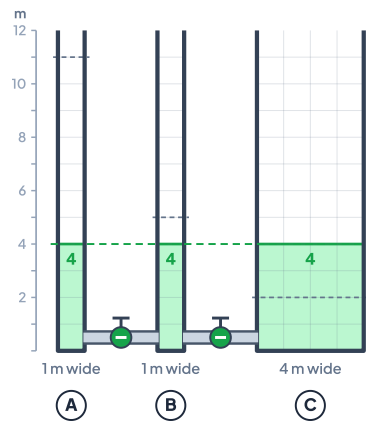
The higher of the
levels

8

Band 4

Answer: D

The left valve opens, then the right one. Where does the water finally settle?



First valve: $16 \text{ squares} \div \text{width } 2 = 8 \text{ m}$
 Both valves: $24 \text{ squares} \div \text{width } 6 = 4 \text{ m}$
 The order does not matter: all the water, all the width

(A)

1 m

Not the level the
water settles at

(B)

2 m

Not the level the
water settles at

(C)

3 m

Not the level the
water settles at

(D)

4 m

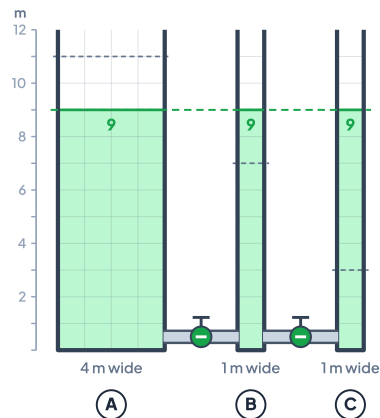
The answer

9

Band 5

Answer: A

The right valve opens, then the left one. Where does the water finally settle?



First valve: $10 \text{ squares} \div \text{width } 2 = 5 \text{ m}$
 Both valves: $54 \text{ squares} \div \text{width } 6 = 9 \text{ m}$
 The order does not matter: all the water, all the width

(A)

9 m

The answer

(B)

10 m

Not the level the
water settles at

(C)

11 m

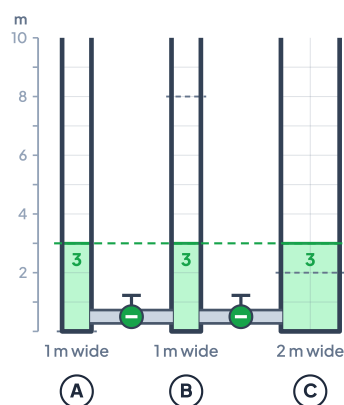
Not the level the
water settles at

(D)

18 m

All the water shared
by the number of
tanks, not by their
width

The right valve opens, then the left one. Where does the water finally settle?



First valve: $12 \text{ squares} \div \text{width } 3 = 4 \text{ m}$
 Both valves: $12 \text{ squares} \div \text{width } 4 = 3 \text{ m}$
 The order does not matter: all the water, all the width

A

2 m

Not the level the
water settles at

B

3 m

The answer

C

4 m

The level after the
first valve only

D

6 m

The first level
averaged with the
last tank, the widths
ignored

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