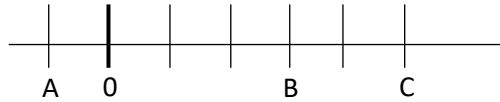


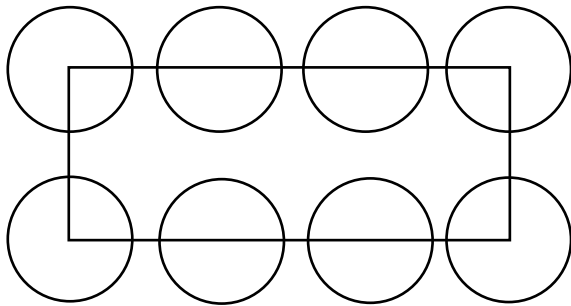


Advanced Maths Problem Solving Worksheet B

1. Look at the number line below. The difference between A and B is 1. What is the C-B?



2. Mandy has placed eight identical circular chairs around a rectangular table. The diameter of each chair is 1m. The gap between adjacent and opposite chairs is 0.5m.



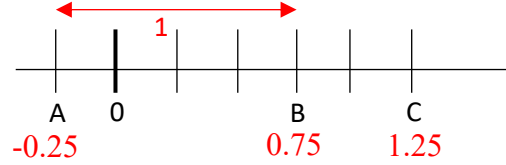
What is the perimeter of the table?

3. In Smiggle Ava bought two pens and three erasers. It cost Ava £3.70. When Jessica went to Smiggle, she bought five pens and three erasers. Jessica spent £6.55. What is the difference between the cost of a pen and the cost of an eraser?
4. The summer fair at school was attended by 250 people. The ratio of adults to children was 2:3. The mean amount of money spent by the attendees was £10. The mean amount spent by each child was £6.
What was the mean amount spent by each adult?
5. The leaky pipe in Natalie's bathroom drips 1 drop every 10 seconds. Each of the drops has a volume of 2mm^3 . Natalie's dad put a bucket that holds 1 litre under the pipe at 9am this morning. When will Natalie's dad need to change his bucket to avoid the bucket overflowing?



Answers

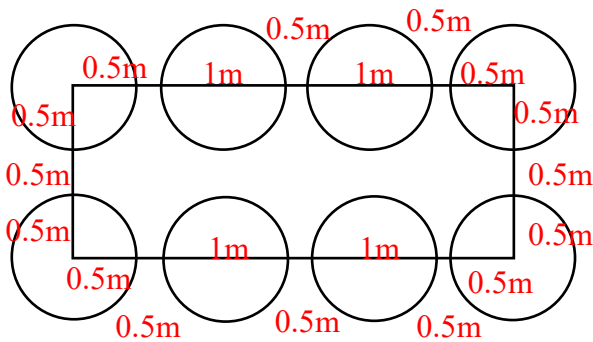
1. Look at the number line below. The difference between A and B is 1. What is the C-B?



$$1 \div 4 \text{ gaps} = 0.25 \text{ per gap}$$

$$1.25 - 0.75 = \underline{0.5}$$

2. Mandy has placed eight identical circular chairs around a rectangular table. The diameter of each chair is 1m. The gap between adjacent and opposite chairs is 0.5m.



What is the perimeter of the table?

$$(4 \times 1\text{m}) + (16 \times 0.5\text{m}) = \underline{12\text{m}}$$

3. In Smiggle Ava bought two pens and three erasers. It cost Ava £3.70. When Jessica went to Smiggle, she bought five pens and three erasers. Jessica spent £6.55. What is the difference between the cost of a pen and the cost of an eraser?

$$\text{Jessica: } 5p + 3e = £6.55$$

$$3e = £3.70$$

$$\text{Ava : } 2p + 3e = £3.70$$

$$3e = £1.80$$

$$\text{So : } 3p = £2.85$$

$$e = £0.60$$

$$P = £0.95$$

$$\text{Using Ava's equation: } £1.90 +$$

:

:

$$\text{So, difference: } £0.95 - £0.60 = \underline{£0.35}$$



4. The summer fair at school was attended by 250 people. The ratio of adults to children was 2:3. The mean amount of money spent by the attendees was £10. The mean amount spent by each child was £6.

What was the mean amount spent by each adult?

Total spent at fair: 250 people x £10 = £2500

Ratio Adults : Children

2 : 3 (2+3 = 5 people. 250 ÷ 5 = 50 times the ratio)

100 : 150

Total spent by children: 150 children x £6 = £900

Total spent by adults: £2,500 - £900 = £1,600

Mean amount per adult £1,600 ÷ 100 adults = **£16**

5. The leaky pipe in Natalie's bathroom drips 1 drop every 12 seconds. Each of the drops has a volume of 2mm³. Natalie's dad put a bucket that holds 1 litre under the pipe at 9am this morning. When will Natalie's dad need to change his bucket to avoid the bucket overflowing?

60 seconds ÷ 12 seconds = 5 drops per minute

2mm³ x 5 = 10mm³ of water drips per minute

1 litre = 1000mm³. So 1000mm³ ÷ 10mm³ per min = 100 minutes.

9am plus 100 mins is 10.40am. **Natalie's dad needs to change the bucket before 10.40am.**