

# Number Nest Weekly Challenge



## Warm up

1. What is  $4 \times (18 - 7) + 6$ ? **50**
2. True or false:  $\frac{35}{1000} + \frac{2}{100} = 55\%$  **False,  $\frac{35}{1000} + \frac{2}{100} = 0.055$  which is 5.5%**
3. What is 65 miles to kilometers? **104km**
4. Convert 62000 cm<sup>2</sup> to m<sup>2</sup>: **6.2 m<sup>2</sup>**

5 miles = 8 km

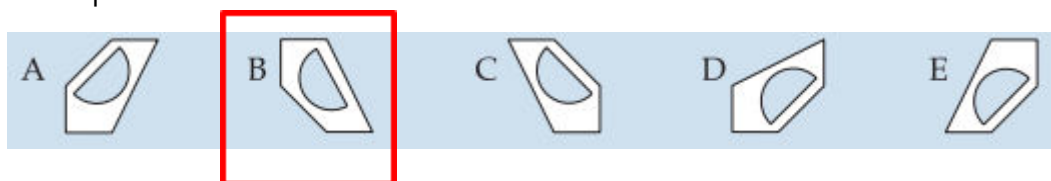
## Activity

1. Dallas is approximately three times taller than his dog, Dash, Dash is 57 cm tall. Approximately how tall is Dallas?  
a) 170 mm    b) 161 cm    c) 1.5 m    d) 19 cm    **e) 1.7 m**

$$57 \times 3 = 171 \text{ cm} = 1.71 \text{ m}$$

**That's approximately 1.7m**

2. Four of these five shapes are reflections or rotations (or both) of each other. Which shape is the odd one out?



**Notice that B is the only shape where the diameter of the semicircle faces the long diagonal of the irregular pentagon.**

3. A grand piano went on sale last year for £21600, but this year its price has been reduced to £17280. What percentage discount is this?

**Percentage of £17280 out of £21600 is  $\frac{17280}{21600}$**

**Simplifying this fraction by dividing the numerator and denominator with common factors will help you find the percentage.**

$$\frac{17280 \div 10}{21600 \div 10} = \frac{1728 \div 9}{2160 \div 9} = \frac{192}{240} \text{ and so on to find } \frac{8}{10} \text{ or } 80\%$$

**This means the current price is 80% of the original price so percentage discount is  $100\% - 80\% = 20\%$**



4. Alvin the chipmunk has gathered 100 acorns. He eats some of them and finds that he can divide what is left into piles of 2, or piles of 3, or piles of 5 acorns, each time with one acorn left over. When he divides the acorns into piles of 7 each, he has no leftover acorns. How many acorns did Alvin the chipmunk eat?

**From the question, we can deduce that the number of leftover acorns can be divided by 7, and the number of leftover acorns - 1 can be divided by 2, 3, and 5.**

**Consider factors of 7 under 100 to see which number satisfies the conditions above: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91.**

**Alvin must have eaten 9 acorns as 91 is divisible by 7 and the remainder is 1 when 91 is divided by 2, 3 and 5.**

**Answer:  $100 - 91 = 9$**

### Puzzle

Harriet the Hare and Toby the Tortoise want to cross the finish line at the same time at the end of their 12 km woodland race. Toby sets off at 8:15am and trots at a constant speed of 4 km per hour. Harriet runs at a constant speed of 8 km per hour. At what time should Harriet set off?

**Toby would take  $12 \div 4 = 3$  hours to complete the race so he will finish at 11:15 am. Harriet would take  $12 \div 8 = 1.5$  hours or 1 hour and 30 mins. In order to finish at 11:15 am as well, Harriet will need to set off at 11:15 am - 1.5 hours = 9:45 am.**

