

Week 16

Tuesday 7th July 2020

Year 6 Using Formulae - Varied Fluency

Watch the demonstration on *formulae (or formulas) to be able to have a better understanding on what is a formula, how to use one and how to form one.

https://www.youtube.com/watch?v=MMjl_c2EJU0

***Formulae** is the plural of **formula**, so one formula **two formulae** or **formulas**. We use **formulae** in **Algebra** as it represents a set of quantities (variables - i.e **$P = 4a$** which is used to represent **perimeter = 4 x measurement of one side**. This formula would be for the perimeter of a square as it has 4 equal sides)

Formulae

1a. Match each box on the left to the correct label.

$$P = 2a + 2b$$

formula

$$36 + 56 = 92$$

calculation



6 VF

Formulae

1b. Match each box on the left to the correct label.

$$30 = 16 + 14$$

formula

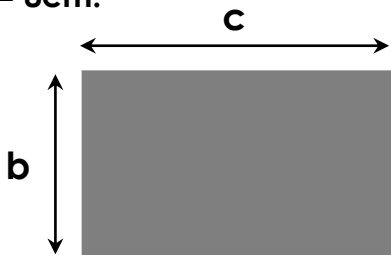
$$A = c \times d$$

calculation



6 VF

2a. Work out the area (A) of this shape using the formula $A = b \times c$, if $b = 5\text{cm}$ and $c = 8\text{cm}$.



Not to scale



6 VF

2b. Work out the perimeter (P) of this shape using the formula $P = 2a + 2b$, if $a = 4\text{cm}$ and $b = 9\text{cm}$.



Not to scale



6 VF

3a. Circle the correct formula for doubling a number.

$$D = n \times n$$

$$D = 2n$$

$$D = \frac{n}{2}$$



6 VF

3b. Circle the correct formula for halving a number.

$$H = n \div n$$

$$H = 2n$$

$$H = n \div 2$$



6 VF

4a. The number of adults (a) needed to oversee an early years trip is calculated as six children (c) to each adult.

Expressed as the formula:

$$c = 6a$$

If there are 5 adults how many children can go on the trip?



6 VF

4b. The number of clean towels (t) needed by a hotel is calculated as 3 per guest (g).

Expressed as the formula:

$$t = 3g$$

If there are 20 guests how many clean towels do they need?



6 VF

Formulae

5a. Match each box on the left to the correct label.

$$9 + 3y$$

formula

$$V = 4r + s$$

expression

$$25 = 100 \div 4$$

calculation



6 VF

Formulae

5b. Match each box on the left to the correct label.

$$27 - f$$

formula

$$35 \div 7 - 3 = 2$$

expression

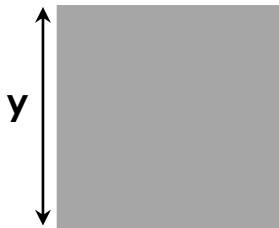
$$R = 2h \times 4$$

calculation



6 VF

6a. Work out the perimeter (P) of this shape using the formula $P = 4y$, if $y = 2.3\text{cm}$.



Not to scale



6 VF

6b. Work out the perimeter (P) of this shape using the formula $P = 2(y + z)$, if $y = 1.5\text{cm}$ and $z = 5.2\text{cm}$.



Not to scale



6 VF

7a. Circle the correct formula for finding a squared number.

$$a = 2b$$

$$a = b \times b$$

$$a = \frac{b}{2}$$



6 VF

7b. Circle the correct formula for finding 25% of a number.

$$a = n \div 25$$

$$a = 0.25n$$

$$a = \frac{n}{25}$$



6 VF

8a. To calculate the price of a taxi (P), the firm decide to charge £0.75 per mile (m).

Expressed as the formula:

$$0.75m = P$$

If a journey is 8 miles how much will a taxi cost?



6 VF

8b. When baking cupcakes, Sara needs half the amount of sugar (s) to flour (f).

Expressed as the formula:

$$s = \frac{f}{2}$$

How much sugar will she need if she uses 250g of flour?



6 VF

Formulae

9a. Match each box on the left to the correct label.

$$5(g - m)$$

formula

$$S = d \div t$$

expression

$$C = 2r^2$$

calculation

$$72 = (12 \times 3) \times 2$$



6 VF

Formulae

9b. Match each box on the left to the correct label.

$$L = 4h \times 0.5$$

calculation

$$P = 2(a \times b)$$

expression

$$3(p - 3)$$

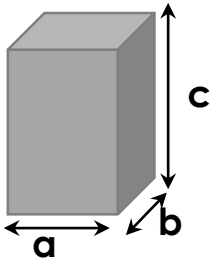
formula

$$-23 = 20 - 43$$



6 VF

10a. Work out the volume (V) of the shape below using formula $V = a \times b \times c$, if $a = 3\text{cm}$, $b = 2\text{cm}$ and $c = 5.5\text{cm}$.

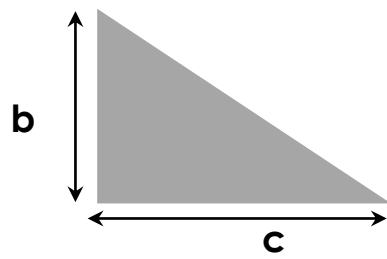


Not to scale



6 VF

10b. Work out the area (A) of the shape below using the formula $A = \frac{(b \times c)}{2}$, if $b = 3.2\text{cm}$ and $c = 5\text{cm}$.



Not to scale



6 VF

11a. Circle the correct formula for doubling a number and finding 45%.

$$a = 2n \times 0.45$$

$$a = n \times 2.45$$

$$a = \frac{2n}{0.45}$$



6 VF

11b. Circle the correct formula for finding 125% of a number.

$$a = n \div 12.5$$

$$a = 0.125n$$

$$a = n + 0.25n$$



6 VF

12a. To calculate the bmi of a person, you can use their weight in kilograms and height in metres.

Expressed as the formula:

$$\text{bmi} = \frac{w}{h^2}$$

If someone is 2m tall (h) and weighs 92 kg (w), what is their bmi?



6 VF

12b. To work out the speed (S) of a travelling car, you can use the distance in miles and the time in hours.

Expressed as the formula:

$$S = \frac{d}{t}$$

If a car travels 12 miles in 30 minutes, what speed was it travelling at?



6 VF