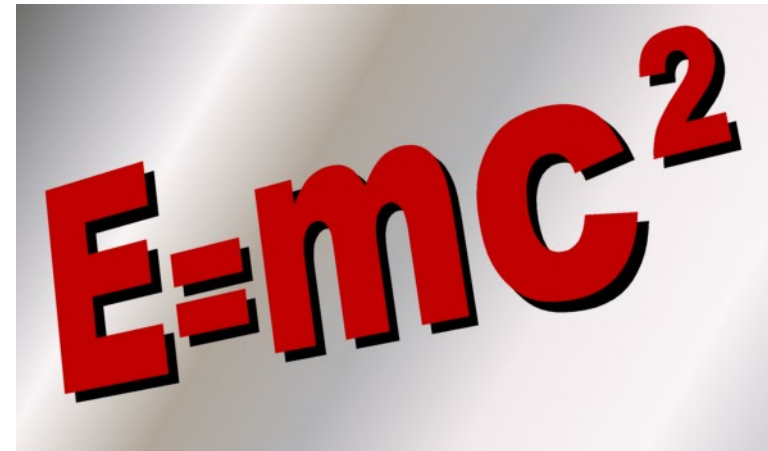


FORMULAE

Lecturer: Mark Gillan

WHAT ARE FORMULAE?

- Formulae is the plural for formula
- Formula literally being a means to obtain a result from a mixture
- A formula can be described as a rule used to work out a value from one or more values (called variables or inputs)
- See the examples on the next page ...

The image shows the equation $E=mc^2$ in a large, bold, red 3D font. The text is slightly tilted and has a black outline, giving it a three-dimensional appearance. It is set against a light gray background with a subtle gradient and a soft shadow.



EXAMPLES

Example A:

- A rule to calculate the cost of hiring a hall for a wedding could be £200 plus £6 per person
- This rule could help someone ensure the cost of the hall is covered plus the expense for each person
- The rule could be written as a formula:
 $c = 200 + 6n$
where c is the cost in Pounds Sterling £
and n is the number of people
- So, if 70 people the it would be
(REMEMBER BODMAS):

Cost = $200 + (6 \times 70)$
This would be Cost = $200 + 420$ being £620

Example B:

- A rule to find the area of a triangle. The formula is to take half the length of its base and multiply it by the vertical height. Written as a formula:
- $A = \frac{1}{2}bh$
where A is the area, b is base length, h is height
- If we had a triangle with a 7cm base length and a vertical height of 16cm it would fit into the formula:
- $A = \frac{1}{2} \times 7 \times 16 = 56 \text{ cm}$
- So, the area is $\frac{1}{2} \times 7 = 3.5$ then this multiplied by the h being 16cm, giving us $3.5 \times 16 = 56$



TRY THIS ONE YOURSELF

- A formula could be used to work out the cost of a newspaper advertisement
- $C = 5W + 10A$
- Where:
- C is charge in Pounds Sterling £
- W is the number of words
- A is the area of the advertisement in cm^2 (centimetres squared)
- Calculate out using multiplication and addition as previously shown, noting there will be 17 words with occupying 15cm^2



THE ANSWER



- $C = 5W + 10A$
- First part is the 5×17 words = 85
- Second part is 10×15 area = 150
- Then $85 + 150$
- Means...
- $C = 235$
- The cost would be £235 if this formula is to be used

