Englisch for Engineers

Math Basics

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Basic math operations

addition

- Plus
- Equals
- Sum
- Equation
- Solution

$$5 + 7 = 12$$

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Basic math operations

subtraction

- Difference
- Minus
- Negative

$$5 - 7 = -2$$

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Basic math operations

multiplication

- Times
- Multiply by
- Product

$$5 \times 7 = 35$$

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Basic math operations

division

- 5 over 7 (US)
- 5 on 7 (UK)
- 5 divided by 7
- Fraction
- Equals about
- Decimal number
- Point / comma

$$\frac{5}{7}$$

$$5:7 \approx 0.71$$

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Advanced math operations

power

- Squared
- Cubed
- To the nth power
- To the power of n

5^2

5^3

5^n

5^7

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Binominal theorem

$$(a+b)^2 = a^2 + 2ab + b^2$$

- a plus b in brackets squared equals
- a squared plus
- two times a times b plus
- b squared

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Advanced math operations

integral

- Primitive / antiderivative
- Function
- Derivative
- Integral
- Limits

$$F(x)$$

$$f(x)$$

$$f'(x)$$

$$\int$$

$$\int_a^b$$

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Centroid of line

$$L = \int dx_1 = \frac{A}{h}$$

- L equals
- The integral d x-one equals
- A divided by h

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Advanced math operations

roots

- Root
- Square root
- Cube root
- Degree of root
- Extract the root

$$\sqrt{}$$

$$\sqrt[2]{}$$

$$\sqrt[3]{}$$

$$\sqrt[n]{}$$

$$\sqrt[5]{}$$

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Zero points of a parable

$$x_{1/2} = -\frac{p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q}$$

- X one and two equals
- negative p divided by two (p halfed)
- plus minus the extracted root
- from p halfed in brackets and squared minus q

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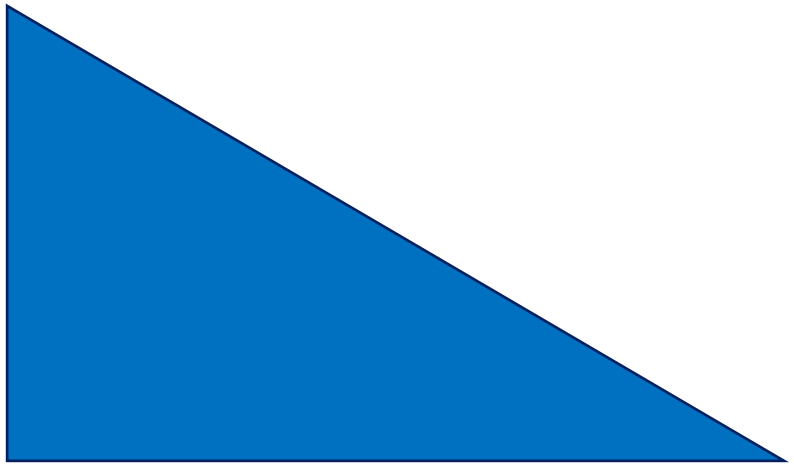
Advanced mathe operations

trigonometry

- Trigonometric functions
- Sine
- Cosine
- Tangent
- Cotangent
- Arc tangent
- Right angled triangle
- Hypotenuse
- Adjacent side
- Opposite side



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Pythagorean theorem

$$\sin(x)^2 + \cos(x)^2 = 1$$

- Sine of x squared plus
- Cosine of x squared equals
- one

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Practice!

$$(a-b)^2 = a^2 - 2ab + b^2$$

- A minus b in brackets squared equals a squared minus two times a times b plus b squared

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Practice!

$$\frac{a^r}{a^s} = a^{r-s}$$

- A to the power of r divided by a to the power of s equals a to the power of r minus s

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Practice!

$$X = \sqrt[3]{a^4 \cdot \frac{b}{c}}$$

- X equals the third root over a to the fourth power (power of four) times b divided by c

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Practice!

$$J_p = \int_S (x_2^2 + x_3^2)\, da$$

- J p equals the integral in the limits of s over x-two squared plus x-three squared in brackets times da

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The End

Thank you for your attention and see you next session!

Have a look at the additional material like the vocabulary list!
And make sure to take the quiz!

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