Corbett maths

Substitution
Video 20 on www.corbettmaths.com

Examples

Workout

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Question 1: If a = 7   b = 10   c = 3   d = 8   and e = 15
Find the value of each expression.

(a) a + 5   (b) b − 4   (c) c + d   (d) e − d

(e) 2a   (f) 4b   (g) 3e   (h) 5c

(i) $\dfrac{b}{2}$ (j) $\dfrac{e}{5}$ (k) $\dfrac{d}{4}$ (l) $\dfrac{a}{2}$

(m) a^2 (n) b^2 (o) c^2 (p) d^2

(q) 2a + 1   (r) 3b − 7   (s) 9c + 11   (t) 4e − 45

(u) 2a + 3c   (v) 4d − b   (w) 5a + 2d   (x) e − 4c

(y) 30 − 4a   (z) 15 − 3c

Question 2: If f = 5   g = 6   h = 4   and i = 2
Find the value of each expression.

(a) fg   (b) hi   (c) fgh   (d) i^3

(e) √h   (f) 3f + 2g   (g) 5h + 7i   (h) 9h − 7i

Question 3: If a = −2   b = 5   c = −6   d = 10   and e = 9
Find the value of each expression.

(a) a + 4   (b) b − 8   (c) c + e   (d) a − d

(e) d − c   (f) 2c   (g) 7a   (h) −7b

(i) 2d + 3c   (j) 6e + 3a   (k) 5a + 7   (l) 20 + 4a

(m) ac   (n) 40 − d   (o) 2e − a   (p) bd + a

(q) $\dfrac{a}{2}$ (r) $\dfrac{d}{4}$ (s) √e   (t) c^2

Question 4:   If a = 1.5   b = 4   c = 6   d = 0.5   and   e = −3
Find the value of each expression.

(a) 4(a + d)   (b) 5(c + b)   (c) 3(10 − e)   (d) abc

(e) e^3 (f) d^2 (g) $5b^2$ (h) $8e^2 + 3$

(i) $\dfrac{b + 2}{3}$ (j) $\dfrac{2c - e}{4}$ (k) $\dfrac{10d + 4b}{7}$

Question 5:   P = 2L + 2W,   work out P if L = 8 and W = 3.

Question 6:   C = 15h + 30,   work out C if h = 6.

Apply

Question 1:   The cost of hiring a car for a number of days is calculated using the formula

Hire Cost = 30 x Number of Days + 50

(a) Calculate the cost of hiring a car for 4 days.
(b) Calculate the cost of hiring a car for 9 days.
(c) The hire cost is £110, how many days was the car hired for?
(d) The hire cost is £380, how many days was the car hired for?

Question 2:   The cost of photocopying is given as:

Cost in pence = 3 x number of black & white pages + 15 x number of colour pages

(a) Ella orders 20 black & white pages and 6 colour pages, work out the cost.
(b) Tom orders 400 black & white pages and 70 colour pages, work out the cost.

Question 3:   The time in minutes, taken to cook a chicken is given by the formula

Time = 40 minutes per kilogram plus 20 minutes

(a) Work out the time taken to cook a 5kg chicken.
(b) Work out the time taken to cook a 2.5kg chicken.

Question 4: This formula is used to calculate the weekly pay of a letting agent.

Weekly pay = basic pay + number of houses rented x bonus

The basic pay is £400 and a bonus of £75 is paid for each house rented.
Mrs Lewis rents out 5 houses in one week.
Calculate her pay.

Question 5: This formula can be used to convert between Celsius and Fahrenheit:

$F = 1.8C + 32$

(a) Work out the value of F when C = 10
(b) Work out the value of F when C = 20
(c) Work out the value of F when C = 4
(d) Work out the value of C when F = 35.6
(e) Work out the value of C when F = 41
(f) Work out the value of C when F = 112
(g) Find a temperature when F and C are the same value.

Answers

✓ ✗

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