

Non-calculator Questions

Edexcel

1.

Here is a formula.

$$P = 3T^2$$

Work out the value of P when $T = 10$

(2)

NCFE

2.

The highest temperature recorded in Zak's town this year was 32.9°C

Zak writes the headline,

“Temperature reaches 95°F !”

A formula to convert between $^{\circ}\text{C}$ and $^{\circ}\text{F}$ is: $^{\circ}\text{C} = 5 \times (^{\circ}\text{F} - 32) \div 9$

Is Zak's headline correct?

Show how you decide.

[2 marks]

Large empty rectangular box for showing the working out.

Your answer:

Small empty rectangular box for the final answer.

AQA

3.

Sally could use the airport car park for **14 days**.

The total charge for parking is given by

$$\text{Charge} = \text{£}19.95 + \text{£}12.00 \times (\text{Number of days} - 1)$$

Sally says,

“The total charge would be more than £170”

Is she correct?

You **must** show your working.

[5 marks]

Calculator Questions

NCFE

1.

A player's True Shooting Percentage (TS%) for a game is calculated using the following formula:

$$TS\% = \frac{50P}{0.44F + A}$$

Where: P = total points scored

F = number of free throw attempts

A = number of other goal attempts

In her last game of the season, Lottie:

- scored a total of 15 points
- attempted 8 free throws
- made 17 other goal attempts.

Use the rule to calculate Lottie's TS% for this game.

[2 marks]

Your answer:

2.

Some drivers driving over the speed limit are invited to go to a Speed Awareness Course instead of getting penalty points.

There is a maximum speed at which a person can drive and be invited to a Speed Awareness Course.

This speed is given by this formula:

$$M = 1.1L + 9$$

Where:

M is speed in miles per hour

L is the speed limit

Calculate M when $L = 30$ miles per hour.

[1 mark]

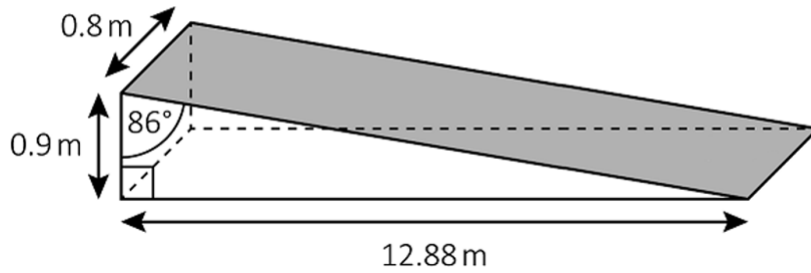
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Your answer:

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3.

This diagram shows the measurements of the ramp:



The group need to order enough concrete to make the ramp.

The formula to find the volume of a triangular prism is: $\frac{L \times H \times W}{2}$

Where:

- L is length
- H is vertical height
- W is width

Calculate the volume of concrete that is needed to build the ramp.

[2 marks]

Your answer:

m³

4.

The theatre director wants a spotlight that will give a circle of light on the stage with a diameter of approximately 2.15 m

The formula for working out the diameter of the light on the stage is:

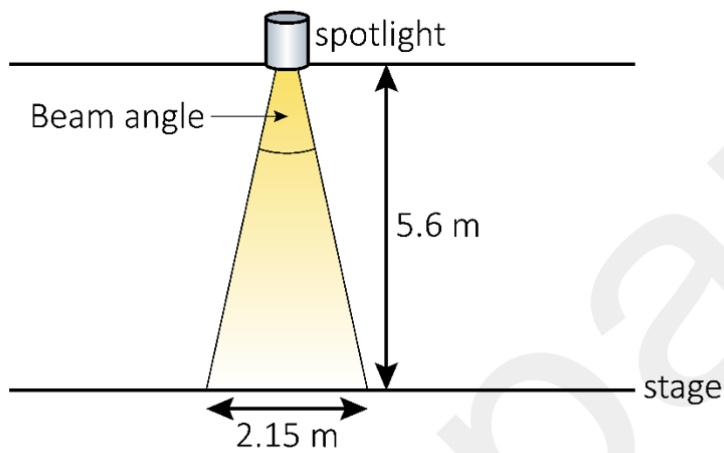
$$D = \frac{B \times H \times 18}{1000}$$

Where:

D is the diameter of the circle of light (in m)

B is the beam angle (in degrees)

H is the vertical distance from the spotlight to the stage (in m)



This table shows the available spotlights:

Spotlight	Beam angle
P	19°
Q	26°

Which spotlight should be chosen to get the diameter closest to 2.15 m?
Explain how you decide.

[3 marks]

Blank area for writing the answer and explanation.

Your answer:

Blank box for the final answer.

5.

Abdul employs Fred to fit his new kitchen.

Fred uses this formula to work out what he will charge for this job.

$$C = 1.2 (17.5h + 40)$$

Where: C = charge (£)

h = total number of hours worked

Fred tells Abdul he will need 3 days to complete the work.

He will work 7.5 hours each day.

Work out what Fred will charge for the job.

[3 marks]

DRAFT PAPER	
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Your answer:

£

Highfield

6.

A taxi company uses the following formula to calculate the cost of each journey in pounds (£):

$$C = 0.5n + 5$$

$C = \text{cost (£)}$

$n = \text{number of miles travelled}$

Calculate the cost of a journey that is 25 miles.

Show your working out and write the answer in the box below.

(2 marks)

Answer: _____

7.

You have been asked to order the sandpit for the play area.

A supplier has 3 suitable sandpits for sale.

Sandpit	Price of Sandpit (£)	Total Weight (kg)
Blue	25	28
Green (including free cover)	26	30
Red (including free cover)	30	32

The supplier uses this formula to calculate how much they would charge for delivering and setting up the sandpit:

$$C = 1.2(0.45m + 0.8w)$$

Where:

C = charge to the customer in £

m = total number of miles

w = the total weight of the item in kg

The distance to be travelled is 25 miles.

The nursery's total budget for the sandpit (including delivery and setting up) is £70.

Which sandpit would you choose?

Show your working out and write the answer in the box on the opposite page.

(5 marks)

8.

Calculate the value of n where:

$$n = 342 + 88^2 \div 4$$

Write the answer in the box below.

(1 mark)

Answer: _____

Open Awards

9.

The formula below is used to calculate the percentage fuel saving when driving at a reduced speed compared to a higher speed.

$$F = 100 \times \left(\frac{a-b}{b} \right)^2$$

F = % fuel savings

a = original average speed

b = reduced average speed

Calculate F when the speed is reduced from 60 mph to 50 mph. (3 marks)

Show your calculations and/or workings out below:

Write your answer in this box.