

Name: _____

Logarithms

Instructions

- Use black ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided there may - be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise - indicated.
- You must show all your working out.

Information

- The marks for each question are shown in brackets use - this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1. Solve the following logarithmic equation

$$2 \log_{10} x + \log_{10} 3 = \log_{10} 75$$

(Total 3 marks)

2. Solve the following logarithmic equation

$$\log_a x + \log_a(x - 3) = \log_a 10$$

(Total 3 marks)

3. Solve the following logarithmic equation

$$\log_5(4t + 7) - \log_5 t = 2$$

(Total 4 marks)

4. Solve the following logarithmic equation for x

$$\log_a(x^2 - 10) - \log_a x = 2 \log_a 3$$

(Total 4 marks)

5. Solve the following logarithmic equation

$$\log_2(2z + 1) = 2 + \log_2 z$$

(Total 4 marks)

6. Solve the following logarithmic equation

$$\log_5(125x) = 4$$

(Total 3 marks)

7. Solve the following logarithmic equation

$$1 + 2 \log_5 x = \log_5(16x - 3)$$

(Total 4 marks)

8. Solve the following logarithmic equation

$$\log_x 16 = \log_x 9 + 2$$

(Total 3 marks)

9. Solve the following logarithmic equation

$$\log_y 27 = 3 + \log_y 8$$

(Total 3 marks)

10. Solve the following logarithmic equation

$$2 \log_3 t = 1 + \log_3 7t$$

(Total 4 marks)