1. Answer each of the following questions, showing all working.

(a) There are eight equations given in this question, and you need to match each equation with its corresponding graph. The graphs are shown below.

Graph A | Graph B | Graph C | Graph D | Graph E
---|---|---|---|---

Graph F | Graph G | Graph H | Graph I | Graph J
---|---|---|---|---

Graph K | Graph L | Graph M | Graph N | Graph O
---|---|---|---|---

Graph P | Graph Q | Graph R | Graph S | Graph T
---|---|---|---|---

(i) Equation is: \( y + x - 2 = -3 \)
(ii) Equation is: \( y = 3x^2 + 2 \).
(iii) Equation is: \( y = -|4x| \).
(iv) Equation is: \( y = -2x^2 - 1 \).
(v) Equation is: \( y = x^2 - 1 \).
(vi) Equation is: \( y = -2x^2 + 1 \).
(vii) Equation is: \( 3y + 2x + 1 = 3 \)
(viii) Equation is: \( -y + 1 = 3 \)

(b) If $100 is invested for 7 years at a rate of 6% per annum, find the final balance if interest compounds:

(i) annually?
(ii) every six months?
(iii) monthly?
(iv) continuously?

2. Without using a calculator, find each of:

(i) \( \log_{10} 100 \).
(ii) \( \log_{10} \frac{1}{10} \).
(iii) \( \ln e^3 \).
(iv) \( \ln \frac{1}{e^5} \).

2. Answer each of the following questions, showing all working.

(a) There are eight equations given in this question, and you need to match each equation with its corresponding graph. The graphs are shown in Question 1, Part (a).

(i) Equation is: \( y = -x^2 - 2 \).
(ii) Equation is: \( x - 1 = 0 \).
(iii) Equation is: \( y + 2x - 1 = -3 \).
(iv) Equation is: \(-2y + 2x - 3 = 3 \).
(v) Equation is: \( 2y - 3 = -2 \).
(vi) Equation is: \(-y - 3x - 3 = -3 \).
(vii) Equation is: \( y = x^2 + 1 \).
(viii) Equation is: \( y = e^x \).