Second Year Assignment Test 1 Version O

1. A particle is projected vertically upwards with a speed of 30 ms^{-1} from a point A. The point B is *h* metres above A. The particle moves freely under gravity and is above B for 2.4 seconds. Calculate the value of *h.*

2. A set of data values, x, is shown below:
52, 73, 31, 73, 38, 80, 17, 24

a) Code the data using the coding $y = \frac{x-3}{7}$

b) Calculate the mean of the coded data values

c) Use your answer to (b) to calculate the mean of the original data.

3. a) Show that $x - 2$ is a factor of $9x^4 - 18x^3 - x^2 + 2x$

b) Hence find four real solutions to the equation $9x^4 - 18x^3 - x^2 + 2x = 0$

Second Year Assignment Test 1 Version P

1. A particle is projected vertically upwards with a speed of 25 ms^{-1} from a point A. The point B is *h* metres above A. The particle moves freely under gravity and is above B for 2.4 seconds. Calculate the value of *h.*

2. A set of data values, x, is shown below:
52, 72, 27, 77, 32, 82, 17, 2

a) Code the data using the coding $y = \frac{x-2}{5}$

b) Calculate the mean of the coded data values

c) Use your answer to (b) to calculate the mean of the original data.

3. a) Show that $x - 2$ is a factor of $x^4 - 6x^3 + 11x^2 - 6x$

b) Hence find four real solutions to the equation $x^4 - 6x^3 + 11x^2 - 6x = 0$

Second Year Assignment Test 1 Version Q

1. A particle is projected vertically upwards with a speed of 35 ms^{-1} from a point A. The point B is *h* metres above A. The particle moves freely under gravity and is above B for 2.4 seconds. Calculate the value of *h.*

2. A set of data values, x, is shown below:
52, 73, 31, 73, 38, 80, 17, 24

a) Code the data using the coding $y = \frac{x-3}{2}$

b) Calculate the mean of the coded data values

c) Use your answer to (b) to calculate the mean of the original data.

3. a) Show that $x - 2$ is a factor of $12x^4 - 37x^3 + 29x^2 - 6x$

b) Hence find four real solutions to the equation $12x^4 - 37x^3 + 29x^2 - 6x = 0$

Second Year Assignment Test 1 Version R

1. A particle is projected vertically upwards with a speed of 40 ms^{-1} from a point A. The point B is *h* metres above A. The particle moves freely under gravity and is above B for 2.4 seconds. Calculate the value of *h.*

2. A set of data values, x, is shown below:
52, 73, 31, 73, 38, 80, 17, 24

a) Code the data using the coding $y = \frac{x+3}{7}$

b) Calculate the mean of the coded data values

c) Use your answer to (b) to calculate the mean of the original data.

3. a) Show that $x - 2$ is a factor of $24x^4 - 70x^3 + 47x^2 - 6x$

b) Hence find four real solutions to the equation $24x^4 - 70x^3 + 47x^2 - 6x = 0$

Answers Test 1 Version O

1. h = 39 (2 s.f.)

2a) 7, 10, 4, 10, 5, 11, 2, 3 b) 6.5 c) 48.5

3 b) $0,\ 2,\ -\frac{1}{3} and \frac{1}{3}$

Answers Test 1 Version P

1. h = 25 (2 s.f.)

2a) 10,14,5,15,6,16,3,0 b) 8.625 c) 45.125

3 b) $0,\ 1, 2, 3$

Answers Test 1 Version Q

1. h = 55 (2 s.f.)

2a) 24.5, 35.5, 14.5, 35.5, 18, 39, 7.5, 11 b) 22.75 c) 48.5

3 b) $0,\ 2, \frac{3}{4}$ and $\frac{1}{3}$

Answers Test 1 Version R

1. h = 75 (2 s.f.)

2a) $\frac{55}{7}, \frac{76}{7}, \frac{34}{7}, \frac{76}{7}, \frac{41}{7}, \frac{83}{7}, \frac{20}{7}, \frac{27}{7}$ b) $\frac{103}{14}$ c) 48.5

3 b) $0,\ 2, \frac{3}{4}$ and $\frac{1}{6}$