
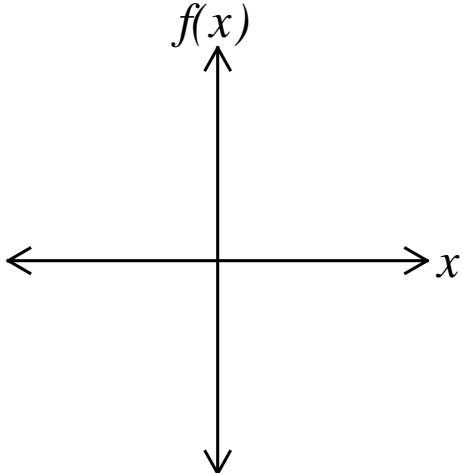


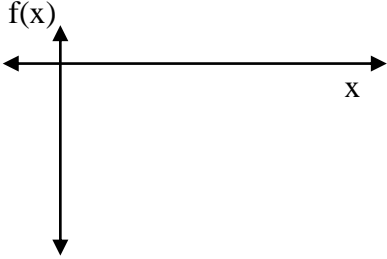
The following questions are to be done using a calculator.  
Write down the answers or make a copy of the graph from the calculator.


	Question	Answer
1	<p>For the univariate data : 12, 18, 15, 23, 19, 16, 14, 17, 20 and 17 find : mean standard deviation</p> <p>And in the space below draw and fully label a box and whisker plot. <i>On the classpad this is called Medbox</i></p> 	<p>Mean _____</p> <p>Standard Deviation _____</p>
2	<p>Find the equation of the straight line passing through the points A (3, 25) and B (-2, 5)</p> <p><i>Hint Use stats and linear reg</i></p>	
3	<p style="text-align: center;"><math>\frac{3}{x-4} = -9</math></p> <p>Solve the equation</p> <p><i>Hint Use action/advanced / solve</i></p>	
4	<p>Find the turning point of the parabola: <math>y = 3x^2 - 12x + 16</math></p>	
5	<p>Data A 2 4 7 3 8 Data B 7 10 15 9 17</p> <p>For the bivariate data A and B above, find</p> <p>The mean of A standard deviation of A The mean of B standard deviation of B The correlation coefficient , <math>r_{AB}</math></p>	<p>Mean of A</p> <p>Mean of B</p> <p>Stand. Dev A</p> <p>Stand Dev B</p> <p>Corr Coeff r</p>
6	<p>Find the equation of the parabola passing through the points A ( 1, -13) B ( 3, -9 ) and C (5, 11)</p> <p><i>Hint Put the x values in List 1 and y values in List 2press Calc and then Quadratic reg this will give the a b c of <math>ax^2 + bx + c</math></i></p> <p>Also give the turning point of this parabola.</p>	

7	<p>Draw ( on calculator) a graph of the quadratic function  <math>f(x) = x^2 - 6x - 9</math></p> <p>a) Sketch the graph.</p> <p>b) Write down i) the turning point  ii) the y intercept  iii) the x intercepts</p>													
8	<p>Evaluate each of the following numbers giving your answers correct to 3 significant figures. <i>Hint Use EXP button</i></p> <p>a) <math>(2.73 \times 10^{-18}) \times (4.32 \times 10^{-15})</math></p> <p>b) <math>(7.63 \times 10^{32}) + (9.84 \times 10^{30})</math></p> <p>c) <math>(6.32 \times 10^{-12}) \div (9.23 \times 10^{17})</math></p>													
9	<p>A frequency table for univariate data is given below:</p> <table style="margin-left: 20px;"> <tbody> <tr> <td>SCORE</td> <td>45</td> <td>53</td> <td>57</td> <td>61</td> <td>66</td> </tr> <tr> <td>FREQUENCY</td> <td>5</td> <td>9</td> <td>13</td> <td>8</td> <td>6</td> </tr> </tbody> </table> <p>a) Find the mean and standard deviation</p> <p>b) Draw and clearly label, a BOX and WHISKER PLOT.</p>	SCORE	45	53	57	61	66	FREQUENCY	5	9	13	8	6	<p>Mean = _____</p> <p>Standard Deviation = _____</p>
SCORE	45	53	57	61	66									
FREQUENCY	5	9	13	8	6									
10	<p>a) Evaluate to 3 significant figures <math>(\sin 48^\circ - \cos 157^\circ)^2</math></p> <p>b) Find to 1 decimal place the acute angle <math>\theta</math>,  if <math>\cos \theta = 0.485</math></p>													

11	<p>Solve simultaneously  <math>y = 4x - 5</math> and <math>2y = -x + 8</math>  <i>for Hint see Q 14 below and picture Q1 or graph the functions</i></p>	
12	<p>Solve for x : <math>\frac{x}{3} + \frac{x}{4} = \frac{7}{3}</math></p>	
13	<p>Evaluate to 3 significant figures: <math>{}^3\sqrt{\frac{2 \times 3 + 5}{1.2 - 0.32}}</math></p>	
14	<p>Solve simultaneously for x and y  <math>x + 3y = 7</math>      <math>x + 9y = 31</math>  <i>Hint In main menu press keyboard and select 2D {– Type the two equations in the boxes followed by x comma y ( See picture Q1)</i></p>	
15	<p>Evaluate to 3 s.f. <math>\sqrt{15^2 + 18^2 - 2 \times 15 \times 18 \times \cos 72^\circ}</math></p>	
16	<p>Increase 54 by 10% and decrease the answer by 10%.</p>	
17	<p>Solve for x: <math>3x^2 - 6x - 15 = 0</math>   <i>Hint In the main menu select action/ advanced/ solve.  <b>solve</b>( then type in <math>3x^2 - 6x - 15,x</math>) (See Picture Q 1)</i></p>	
18	<p>Find the equation of the parabola with a turning point at  (4, -7) and a y- intercept of (0, -39)   <i>Hint Draw a sketch first to find 3<sup>rd</sup> point ( symmetry ) and proceed as Question 6 above</i></p>	

19	<p>Results from two tests are given below:</p> <p>Test1 80 75 73 85 83 78 60 75</p> <p>Test2 77 78 70 79 81 69 61 66</p> <p>a) For Test 1 find the mean (1 d.p.) and the stand. dev. (2 d.p.)</p> <p>b) For Test 2 find the mean and the standard deviation</p> <p>c) On your calculator draw a scattergraph of the data. Comment on the graph.</p> <p>d) State the correlation coefficient <math>r_{T_1 T_2}</math> 3 d.p.</p> <p>e) Comment on the result.</p> <p>f) Find the equation of the line of best fit.</p> <p>g) Predict a mark for test2 if a student achieved 56 for test 1</p> <p>h) Is this extrapolation or interpolation?</p>	<p>Mean _____</p> <p>Stand. Deviation _____</p> <p>Mean _____</p> <p>Stand. Deviation _____</p> <p>_____</p> <p><math>r =</math> _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
20	<p>Find the point of intersection of the functions:</p> <p><math>y = 15(1.12^x)</math> and <math>y = -1.12x + 35</math></p>	
21	<p>For the parabola <math>y = x^2 - 8x + 16</math> find the :</p> <p>turning point                  y – intercept                  x - intercept</p>	<p>_____</p> <p>_____</p>
22	<p>For the univariate data:</p> <p>70 85 81 80 75 74 83 73 66</p> <p>66 71 64 81 42 70 84 82 64</p> <p>64 71 71 77 85 72 70 62</p> <p>find a) the mean (1 d p)                  b) the st. deviation (2 d.p.)</p> <p>c) draw a fully labeled box and whisker plot.</p>	
23	<p>Find the equation of the straight line passing through the points A (-15, 8) and B (-13, -4)</p>	

24	Solve the equation $\frac{3x - 4}{2} = -\frac{1}{3}$	
25	Find the Turning Pt. of the parabola : $y = -3x^2 + 12x - 8$	
26	<p>Data A    12    15    9    12    17  Data B    23    19    29    21    16</p> <p>For the <b>bivariate data</b> A and B find :</p> <p>a) the mean of A( 1dp)    Standard Deviation of A (1dp)  b) the mean of B ( 1.d.p.)    Standard Deviation of B ( 1 d.p.)  c) the correlation coefficient <math>r_{AB}</math> ( 3 d.p.)</p>	<p>_____</p> <p>_____</p> <p>_____</p>
27	<p>Find the equation of the parabola passing through the points  A (1, 31.5), B (-2, -12) and C (-4, -46)  State the turning point of this parabola.  <i>Hint see question 6</i></p>	
28	<p>Draw a graph of the quadratic function <math>f(x) = -0.5x^2 + 4x - 10</math></p> <p>a) Sketch the graph on the given axes:  b) Write down    i)    the turning point                            ii)    the y – intercept                            iii)    the x- intercepts.</p>	 <p>i) _____  ii) _____  iii) _____</p>
29	<p>Evaluate each of the following numbers to 3 significant figures:</p> <p>a) <math>(7.39 \times 10^{-12}) \times (6.87 \times 10^{35})</math>  b) <math>(7.63 \times 10^{32}) - (9.84 \times 10^{33})</math>  c) <math>(9.32 \times 10^{-18}) \div (9.23 \times 10^{-17})</math></p>	
30	<p>A frequency table for <b>univariate data</b> is given below:</p> <p>Score        43    57    59    62    68  Frequency 15    7    5    3    2</p> <p>a) Find the mean ( 1 d.p.) and the standard deviation (2d.p.)  b) Draw and Clearly Label, a Box and Whisker Plot.</p>	<p>a) _____</p>

31	a) Evaluate to 3 significant figures $(\tan 48^\circ + \sin 157^\circ)^2$ b) Find to the nearest degree the acute angle $\theta$ , if $\tan \theta = 0.485$	_____ _____
32	Solve simultaneously for x and y $y = 2x + 7$ and $y = \frac{1}{4}x + 3$	
33	Solve for x: $x^2 - 6x + 7 = 0$ to 3 d.p. and Solve for y: $y^3 + 2y^2 - y - 2 = 0$	
34	Evaluate to 3 significant figures: $\sqrt[4]{\frac{12 \times 3 - 15}{1.2 + 0.32}}$	
35	Solve simultaneously for x and y $x - 3y = -24$ and $3x + 4y = 8$	
36	Solve for x if $f(x) = 2x^3 + 5x^2 - 9x - 19 = 0$ to 2 d.p. <i>Hint See question 17 above and picture on Q 1</i>	
37	Find the fraction for 0.12462 <i>Hint Use the standard / decimal facility</i>	
38	Find the radius of a sphere if the Volume is given to be 1 L. (in cm. correct to 2 significant figures )	
39	Find the factorial button. ! By finding 2! 3! 4! 5! etc. find out what this button does. <i>Hint In main menu press          Keyboard and select mth CALC See Picture Question 1</i>	$2! =$ $3! =$ $4! =$ $5! =$ $6! =$
40	Use your calculator to plot the following function $F(x) = -0.2x^2 + 20x + 100$ You will need to take care with the x and y values otherwise you will NOT see it on the screen. Draw a diagram of it on the right and confirm it looks like the Hector Street Footbridge ( over the Mitchell Freeway in Osborne Park. Find the Turning Point.	 <p>Turning Pt. =</p>