Name:_____

Pre-Assessment 1

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Cambridge International A Level Mathematics

1 Complete the square and solve for x on the following problems

1.1 $x^2 + 6x = -2$

1.2 $8x^2 + 16x = 4$

2 Determine how many real roots the following quadratics have and solve for them

2.1 $x^2 + 2x + 1 = 0$

2.2 $x^2 + 5x - 6 = 0$

2.3 $2x^2 - 8x + 2 = 0$

3 Solve the following inequalities for x

3.1 $53x + 13 < 56x + 16$

3.2 $30x + 53 \geq 18x - 83$

3.3 $(x - 4)(x - 6) < 0$

3.4 $(x - 3)(x - 5) > 0$

4 Solve the following simultaneous equations

4.1 $3x + 6 = y$
$6x - 8 = y$

4.2 $y = x + 2$
$y = x^2$

5 Find the domain and range of the following equations and draw the corresponding graphs.

5.1 $y = x^2$

5.2 $y = e^x$

5.3 $y = log(x)$

6 State the domain and range of the following graphs and identify the corresponding equations

Each tick mark on the graph represents 1.

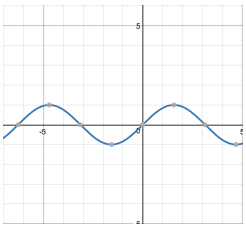

Figure 6.1:

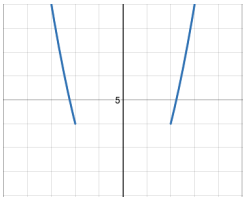

Figure 6.2:

7 Subtract vector A from vector B below

7.1 A. $2\hat{\mathbf{i}} + 6\hat{\mathbf{j}} - 3\hat{\mathbf{k}}$
B. $9\hat{\mathbf{i}} + 0\hat{\mathbf{j}} + 5\hat{\mathbf{k}}$

7.2 A. $22\hat{\mathbf{i}} + 8\hat{\mathbf{j}}$
B. $-5\hat{\mathbf{i}} - 3\hat{\mathbf{k}}$

8 Multiply all of the vectors in the above section by the following scalars

8.1 A. 4
B. -0.5

8.2 A. 10
B. 3

9 Give the exact values of sine, cosine, and tangent for the following angles

9.1 $30°$

9.2 $\frac{\pi}{2}$

9.3 $135°$

10 Write the following trig functions in a different form

10.1 $tan(\theta)$

10.2 $csc(x)$

10.3 $cot(\theta)$

10.4 $sec(x)$