TRIGONOMETRY TEST

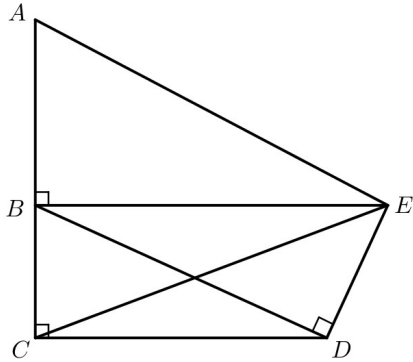## QUESTION 1

S1301

Use the diagram below to complete the given ratios.

1.1 $\sin \hat{A} =$ (1)
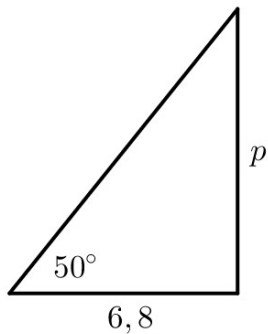
1.2 $\cos B\hat{E}C =$ (1)
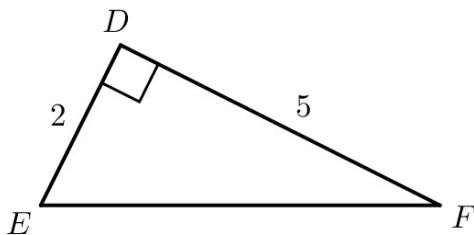
1.3 $\tan B\hat{D}C =$ (1)

[3]

QUESTION 2

2.1   Calculate the value of p in the diagram below.
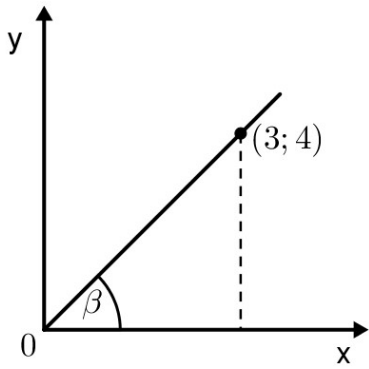
S1303

(3)

2.2   Calculate the size of $\hat{E}$

S1304

(3)

[6]

QUESTION 3

Use the diagram below to complete the given ratios.

3.1 $\sin \beta =$

3.4 $\cot \beta =$

3.2 $\cos \beta =$

3.5 $\sec \beta =$

3.3 $\tan \beta =$

3.6 $cosec\ \beta =$ (7)

[7]

QUESTION 4

4.1 Calculate the following correct to TWO DECIMAL PLACES.   S1302

$\dfrac{\tan 74°}{3} + \sin 25° =$ (1)

4.2 Determine the following WITHOUT THE USE OF A CALCULATOR.   S1308

$\sqrt{2}\ cos\ 45° + cos^2 60° + 3\ tan\ 45°$
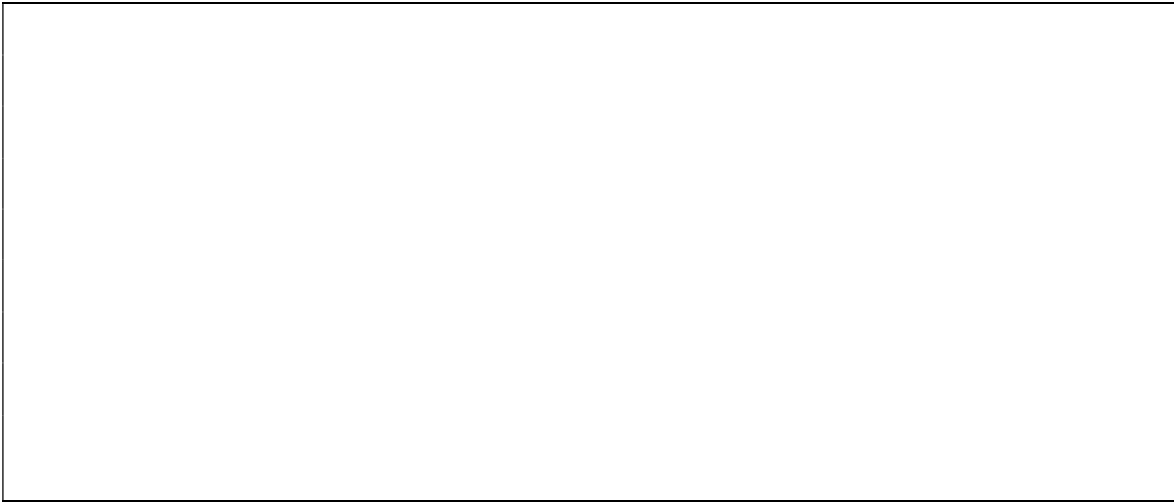
(4)

[5]
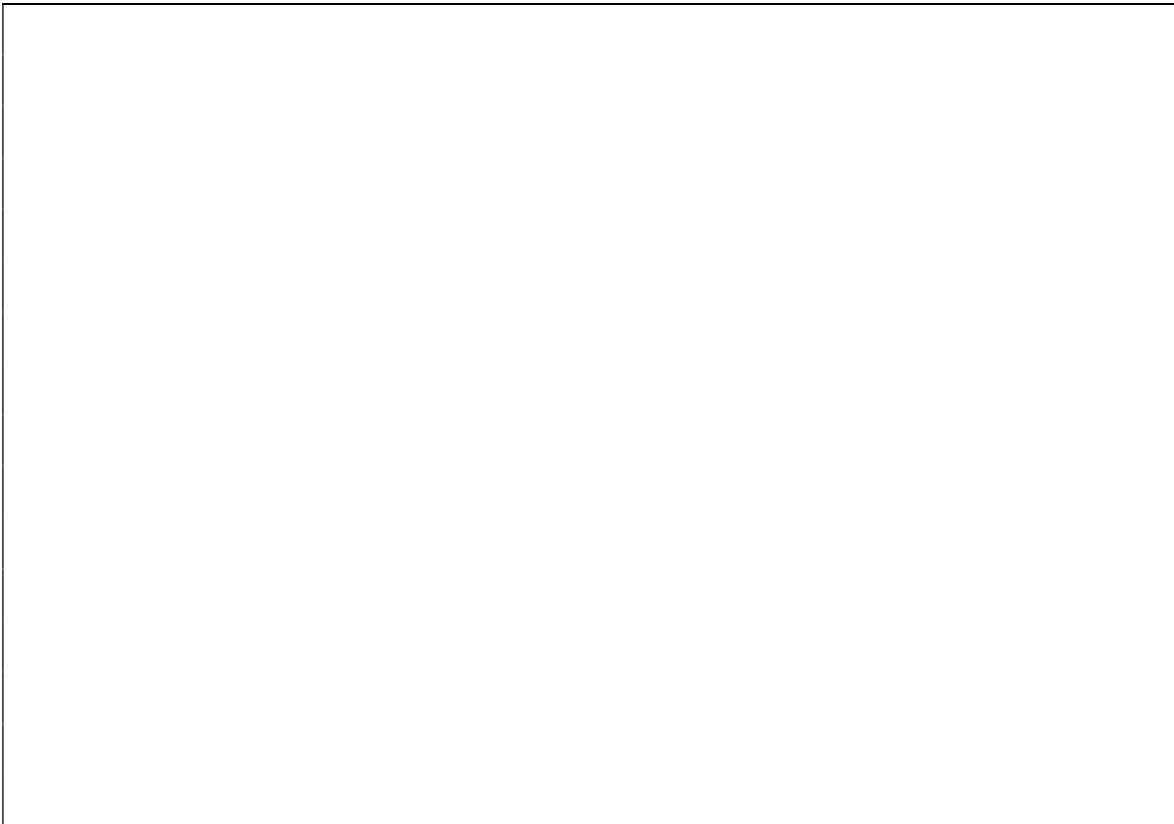
QUESTION 5

5.1   Solve for x:

$4 \sin(2x - 10°) - 1 = 1$

(3)

5.2   If $7 \tan A = -5$ and $A \in [180°; 360°]$, determine the following with the use of a sketch.

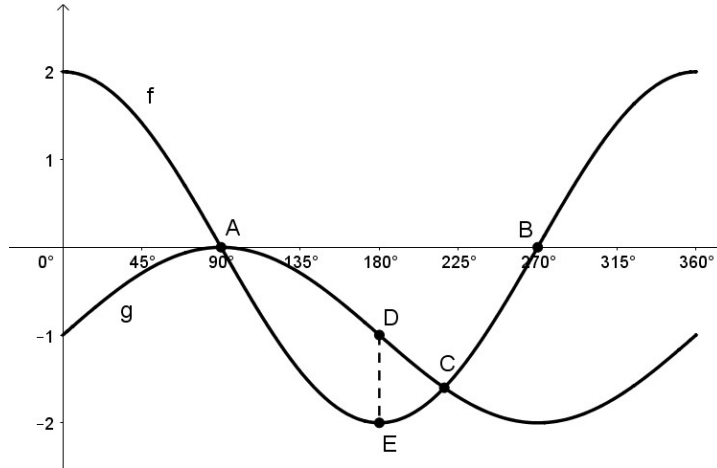5.2.1 $\cos A$

5.2.2 $74 \sin^2 A - \dfrac{49}{\cos^2 A}$

(6)

[9]

QUESTION 6

The graph of $f(x) = a \cos x$ and $g(x) = \sin x - 1$ for $x \in [0° ; 360°]$

6.1   Write down the value of a | S1314 | (1)

6.2   Write down the period of f | S1313 | (1)

6.3   Write down the range of g | S1313 | (1)

6.4   What is the length of DE? | S1315 | (1)

6.5   What is the minimum value of f? | S1313 | (1)

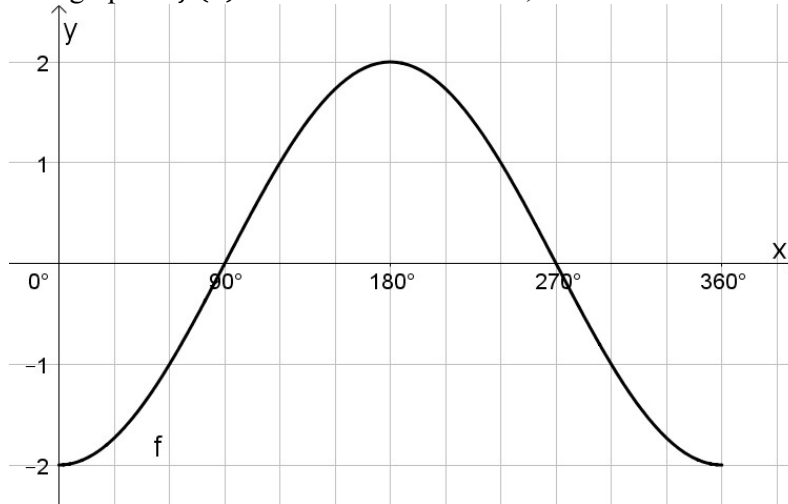6.6   Give the coordinates of the solution to $f(x) = g(x)$ in the interval $0° \le x \le 180°$ | S1315 | (1)

6.7   Calculate the value $g(200)$ correct to 3 decimal places. | S1313 | (1)

[7]

QUESTION 7

In the diagram below the graph of $f(x) = -2\cos x$ is sketched, for the interval $0° \le x \le 360°$

7.1 Write down the amplitude of f | S1313 | (1)

7.2 Write down the minimum value of $f(x) + 3$. | S1313 | (1)

7.3 On the same set of axes in the above diagram, sketch the graph of g, where $g(x) = \sin x + 1$ for the interval $0° \le x \le 360°$ | S1314 | (3)

(answer on the diagram above)

7.4 Use the graph to determine the following:
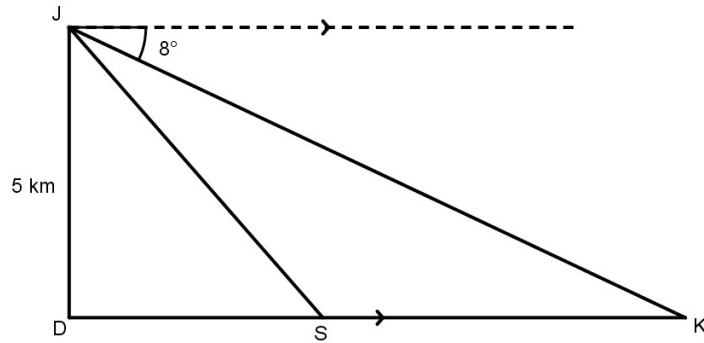
7.4.1 The value of $f(180°) - g(180°)$ | S1315 | (1)

7.4.2 The value(s) for x where $f(x) \cdot g(x) > 0$ | S1315 | (1)

[7]

QUESTION 8

An aeroplane at J is flying directly over a point D on the ground at a height of 5 km. It is heading to land at point K. The angle of depression from J to K is 8°. S is a point along the route from D to K.

8.1   Write down the size of $J\widehat{K}D$ (1)

8.2   Calculate the distance DK, correct to the nearest kilometre.   (2)

8.3   If the distance SK is 8 km, calculate the distance DS.   (1)

8.4   Calculate the angle of elevation from point S to J, correct to ONE decimal place   (2)

[6]

Total: 50 Marks