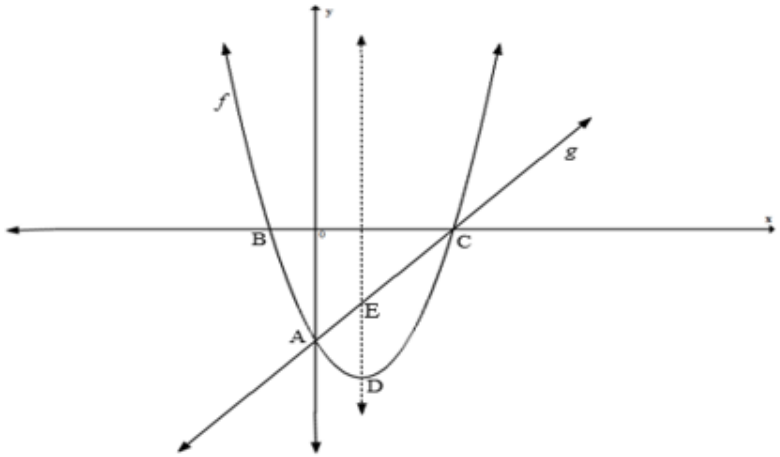
GRADE 11
TECHNICAL MATHEMATICS
PAST PAPER QUESTIONS
FUNCTIONS AND GRAPHS

[DATE]

MICROSOFT
[Company address]

QUESTION 4

The sketch below represent the curves of the parabola f with equation $f(x) = x^2 - 2x - 3$ and the straight line g.



Determine

4.1 the coordinates of A. (2)

4.2 The coordinates of B and C. (4)

4.3 Determine the equation of g in the form $g(x) = mx + c$ (3)

4.4 The coordinates of the D, the turning point of the parabola. (3)

4.5 Calculate the length of ED, where E lies on g and DE produced is perpendicular to the x-axis (3)

4.6 Write down the range of f. (1)

[16]

QUESTION 5

Given: $f(x) = \frac{3}{x} - 2$ and a circle $x^2 + y^2 = 16$

5.1 Write down the equations of the asymptotes of f. (2)

5.2 Determine(if any) the coordinates of the x- and y-intercepts of f (4)

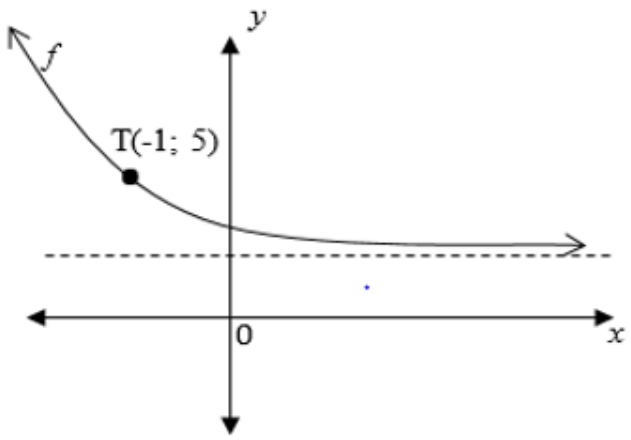
5.3 Determine the radius of the circle. (2)

5.4 Sketch the circle and the graph $f(x)$ of on the same system, indicating all the asymptotes and the intercepts with the axes. (5)

5.5 Write down the domain of the circle (1)

[14]

On the sketch below, $f(x) = b^x + 2$, and $T(-1;5)$ is a point on f



6.1 Calculate the value of b. (3)

6.2 Calculate the coordinates of the y-intercept of f. (2)

6.3 Determine the equation of h, which is a reflection of f about the $y-axis$. (2)

6.4 If $(x;8)$ is a point on the graph f, calculate the value of x (3)

[10]