**Question 1**

Let

Substituting for *a*

**Question 2 a**

50g

N

+

**Question 2 b**

50g

N

+

**Question 3**

Vector component parallel to is given by

Vector component perpendicular to is given by

**Question 4**

**Question 5 a**

Substituting

y-intercept at *x* = 0

∴ other point of intersection is (0, 1)

**Question 5 b**

**Question 5 c**

Given (1,1) is on curve, we can substitute into

 to find *k*

At (1,1)

**Question 6**

**Question 7**

 

When *x* = 1, *v* = -2 

 



Which? When *x* = 1, *v* = -2



Which? Since *v* = -2 then *v* < 0 , so 

**Question 8 a**

**Question 8 b**



Sketch of the graph





**Question 9 a**

**Question 9 b**

**Question 10 a**

Domain for is

 

Dom *f* =

Range for is

**OR**

Dilation  parallel to the *y*-axis



Translation 3 units down



Ran *f* =

**Question 10 b**

Let