Data Representation: Floating Point Representation

1. In *floating point notation* what defines

a) the range

Exponent

b) the precision or accuracy?

Mantissa

2. In floating point representation, what will be the effect of **increasing** the number of bits used to store the **exponent**?

Increasing exponent = increased range

3. What will be the effect of **increasing** the number of bits used to store the **mantissa**?

Increasing mantissa = increased precision

4. When storing a 32-bit *floating point number*, 24 bits are allocated to the mantissa and 8 to the exponent. What is the effect on the **precision** and the **range** of the numbers available if the allocation is changed to a 16-bit **exponent** and a 16-bit **mantissa**?

Exponent reduced to 16bits so decreased range
Mantissa increased to 16bits so increased precision/accuracy.