1. Which is an example of a classification task?   **1 / 1 point**

   ○ Based on a patient's blood pressure, determine how much blood pressure medication (a dosage measured in milligrams) the patient should be prescribed.

   ○ Based on a patient's age and blood pressure, determine how much blood pressure medication (measured in milligrams) the patient should be prescribed.

   ◉ Based on the size of each tumor, determine if each tumor is malignant (cancerous) or not.

     ✓ **Correct**
       This task predicts one of two classes, malignant or not malignant.

2. Recall the sigmoid function is $g(z) = \frac{1}{1+e^{-z}}$ **1 / 1 point**

sigmoid function

$$g(z) = \frac{1}{1+e^{-z}}$$
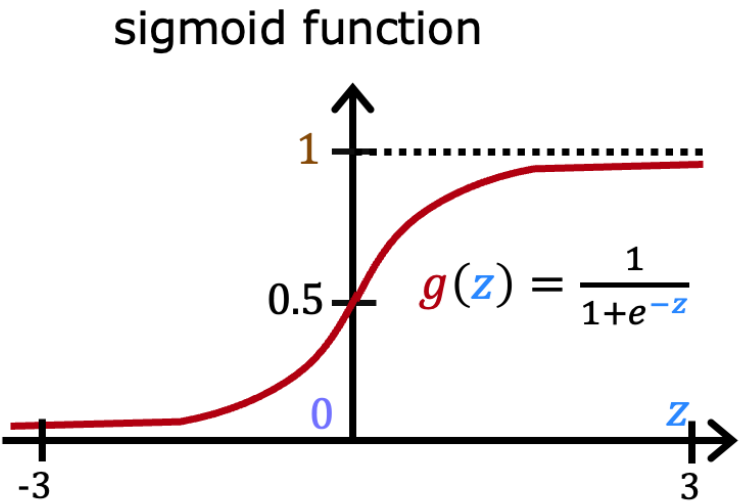
If z is a large positive number, then:
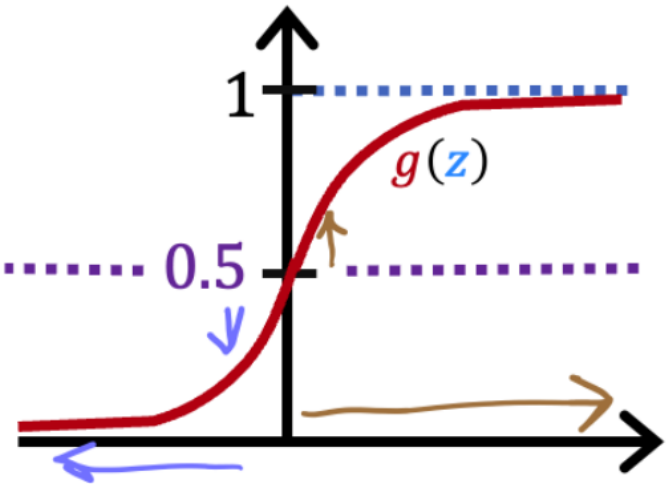
   ○ $g(z)$ is near negative one (-1)

   ○ $g(z)$ will be near 0.5

   ◉ $g(z)$ is near one (1)

   ○ $g(z)$ will be near zero (0)

     ✓ **Correct**
       Say z $= +100$. So e^{-z} is then e^{-100}, a really small positive number. So, $g(z) = \frac{1}{1+\text{a small positive number}}$ which is close to 1

3.   **1 / 1 point**

A cat photo classification model predicts 1 if it's a cat, and 0 if it's not a cat. For a particular photograph, the logistic regression model outputs $g(z)$ (a number between 0 and 1). Which of these would be a reasonable criteria to decide whether to predict if it's a cat?

   ○ Predict it is a cat if g(z) < 0.7

   ○ Predict it is a cat if g(z) < 0.5

   ○ Predict it is a cat if g(z) = 0.5

   ◉ Predict it is a cat if g(z) >= 0.5

     ✓ **Correct**
       Think of g(z) as the probability that the photo is of a cat. When this number is at or above the threshold of 0.5, predict that it is a cat.

4.

True/False? No matter what features you use (including if you use polynomial features), the decision boundary learned by logistic regression will be a linear decision boundary.

○ True

◉ False

> ✓ **Correct**
> The decision boundary can also be non-linear, as described in the lectures.