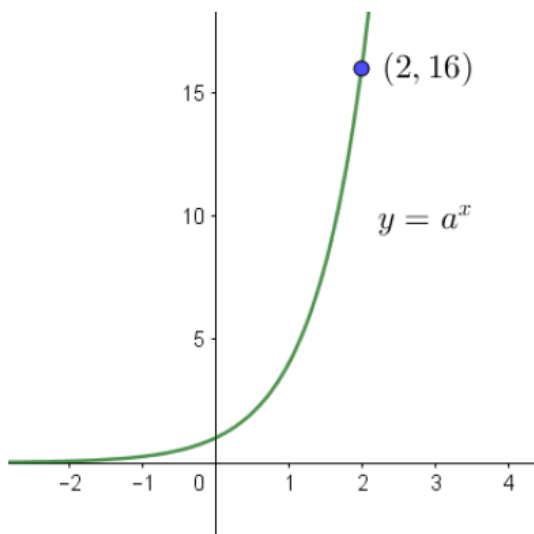


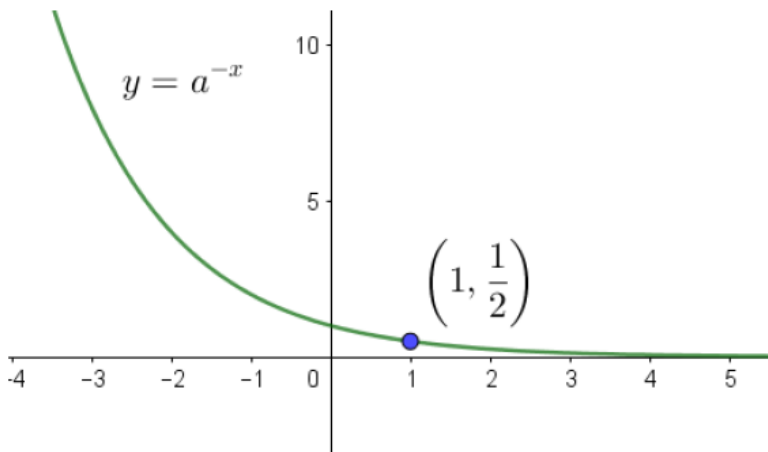
Exponential Functions - Section Test

1. What is the value of $y = 5^x$ when $x = 2$?
2. What is the value of $y = 2^x$ when $x = -2$? Give your answer as an exact decimal.
3. Solve the equation $4^x = 16$.
4. Solve the equation $10^x = \frac{1}{100}$.
5. The curve shown below is $y = a^x$.



What is the value of a ?

6. The curve shown below is $y = a^{-x}$.



What is the value of a ?

7. Interest for a particular bank account is added annually so that, if A is the amount deposited when the account is opened the amount in the account after n full years (assuming that no other money is deposited in the account) is $A(1.02)^n$.

If the amount deposited is £500 and no further deposits are made, how much money, in pounds to the nearest penny, is in the account after 10 years?

8. A ball is dropped from height 90cm. The height, h , in cm, of the n^{th} bounce is modelled by the following formula:

$$h = 90 \times \left(\frac{3}{4}\right)^n.$$

Which is the first bounce with height less than the height from which the ball was dropped?

9. The population, P , of an island after x years is modelled by:

$$P = 2500(2 - 3^{-x})$$

What does the population of the island tend towards as time increases?

10. The point $\left(1, \frac{26}{5}\right)$ is on the curve $y = a^x + a^{-x}$, where $a > 1$. What is the value of a ?