Exponential Graphs

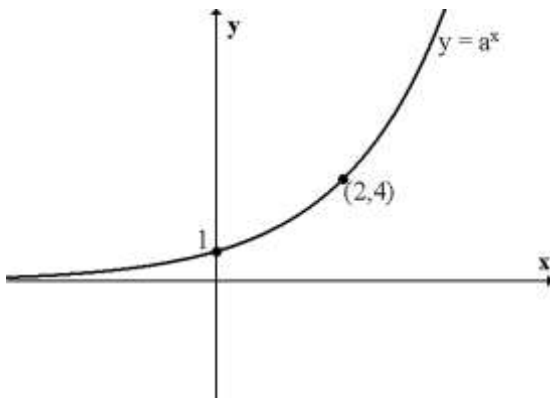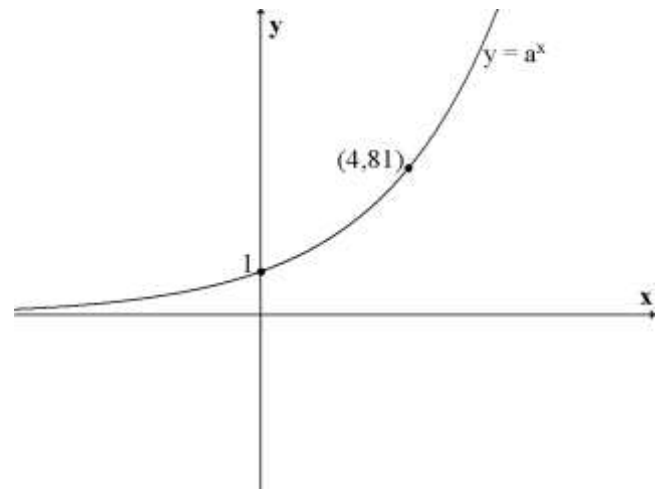**y = aˣ**   **y = a⁻ˣ**
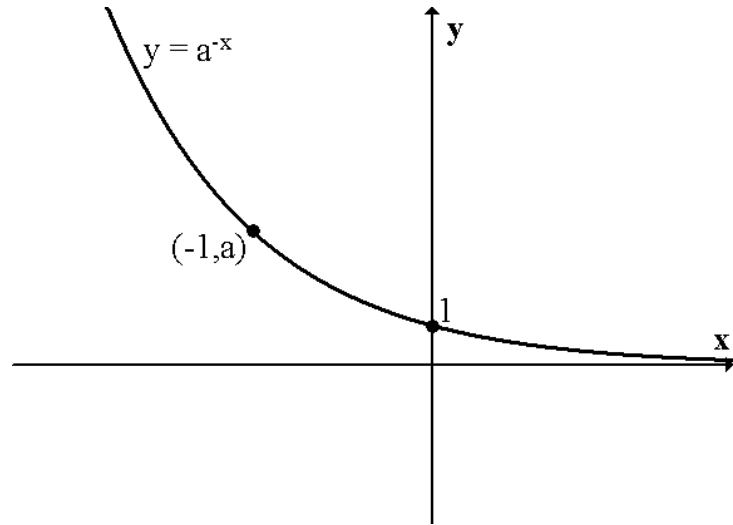
1. Find the value of a in each of the following

(a)

(b)

(c)

(d)

(e)

$y = a^x + 3$
$(-2, 3.04)$
4

(f)

$y = a^{-x} - 3$
-2
$(3, -2.875)$
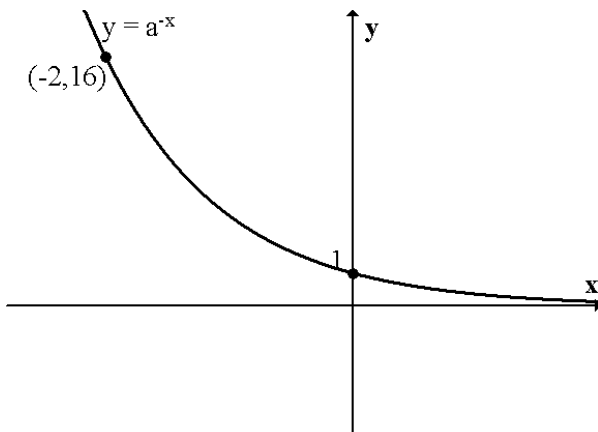
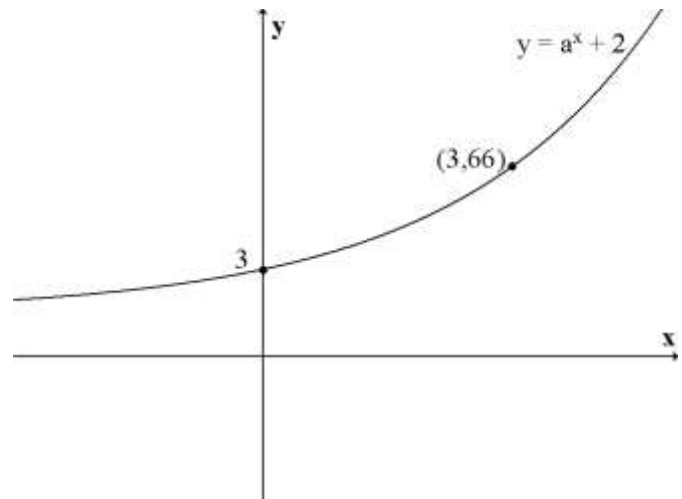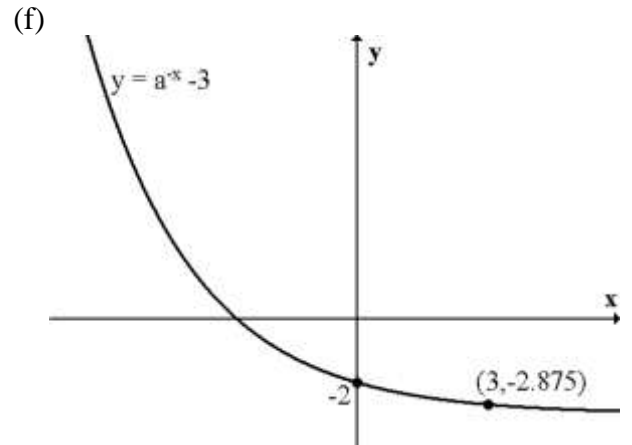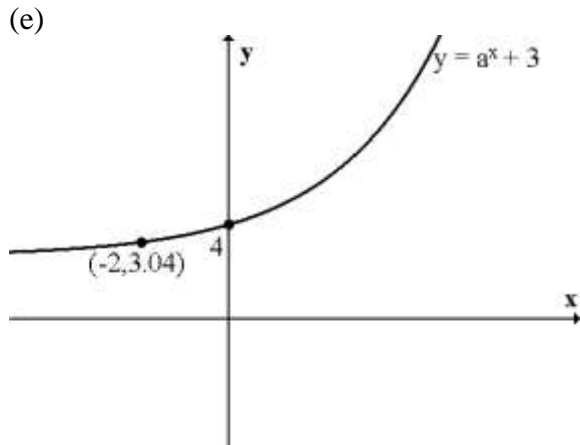2. Find the values of a and b in the following

(a)

$y = a^x + b$
$(2, 13)$
5

(b)

$y = a^x - b$
$(3, 0.859)$
-5

(c)

$y = ba^x$
$(4, 48)$
3

(d)

$y = ba^{-x}$
$(-2, 9)$
4
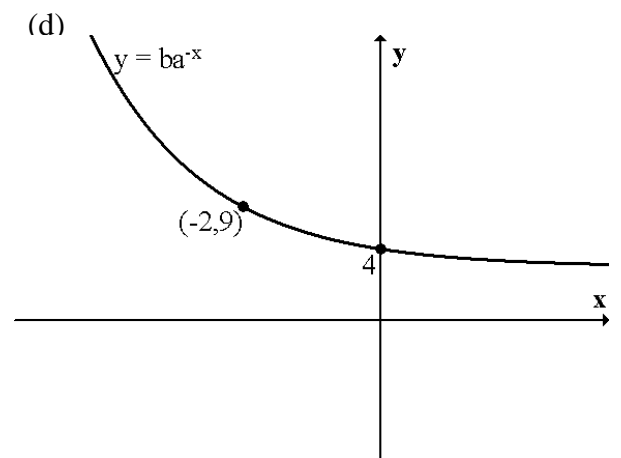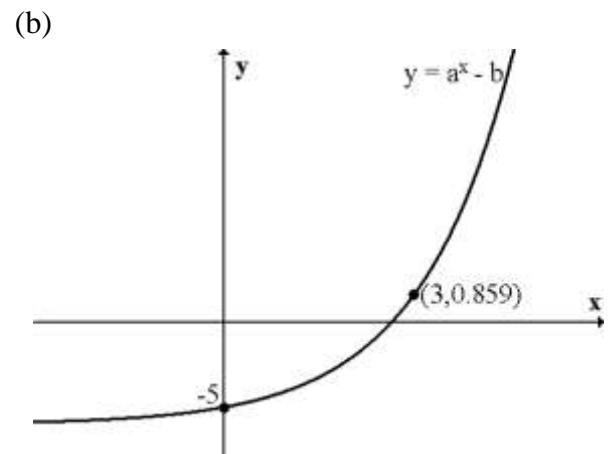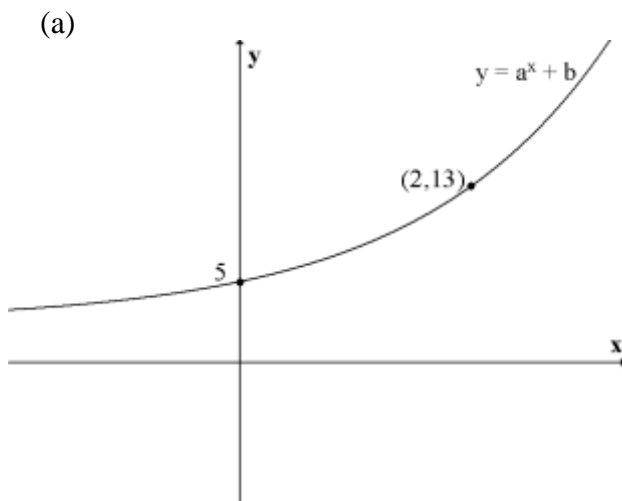
3. The diagram opposite shows the graph of
$y = a^x$.

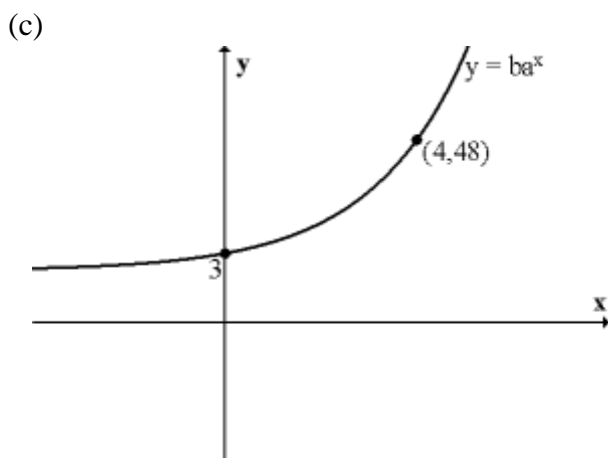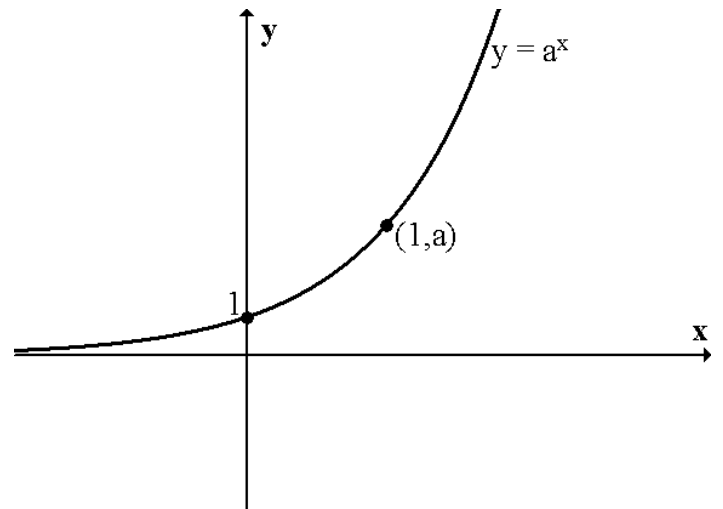On separate diagrams sketch the graphs of

(a) $y = a^x + 2$

(b) $y = a^x - 1$

(c) $y = -a^x$

(d) $y = 3a^x$
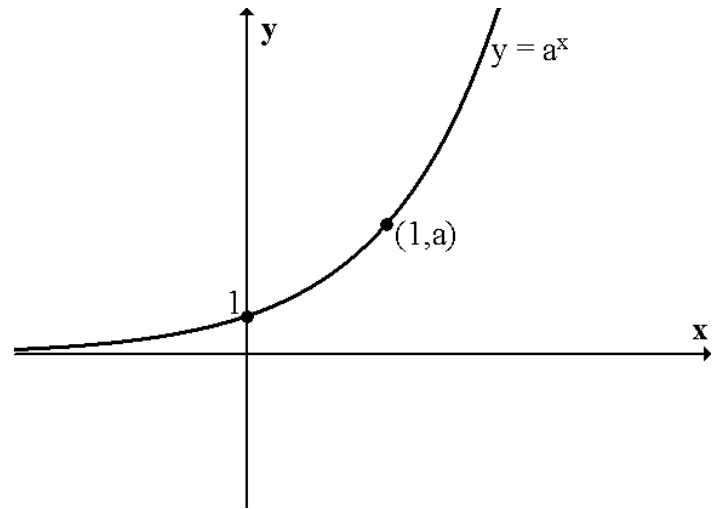
4. The diagram opposite shows the graph of
$y = a^x$.

On separate diagrams sketch the graphs of
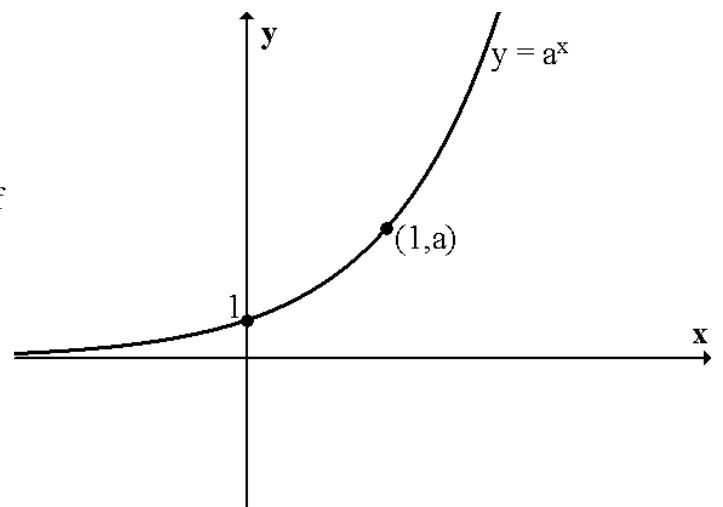
(a) $y = a^{x+1}$

(b) $y = a^{-x}$

(c) $y = a^{-x} + 2$

(d) $y = a^{1-x}$

5. The diagram opposite shows the graph of
$y = a^x$.

On a separate diagrams show the graphs of

(a) $y = -a^{-x}$

(b) $y = 4 - a^{-x}$

6. Show that the x-coordinate of the point of intersection of the graphs $y = a^x + 1$ and
$y = a^{x+1}$ is $x = \log_a\left(\dfrac{1}{a-1}\right)$

7. Show that the x-coordinate of the point of intersection of the graphs $y = a^x - 2$ and $y = a^{x-1}$ is $x = \log_a\left(\dfrac{2a}{a-1}\right)$