Exam Style Questions

**Exponential Graphs**

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser
You may use tracing paper if needed

**Guidance**

1. Read each question carefully before you begin answering it.
2. Don’t spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

**Revision for this topic**

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**Video 345**

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1. (a) Complete the table of values for $y = 3^x$

<table>
<thead>
<tr>
<th>$x$</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Draw the graph of $y = 3^x$ for values of $x$ from $-2$ to $2$
2. Draw the graph of \( y = 2^x \) for values of \( x \) from \(-4\) to \(4\).
3. Draw the graph of $y = \left(\frac{1}{2}\right)^x$ for values of $x$ from $-4$ to $4$
The sketch shows a curve with equation 
\[ y = ab^x \] where \( a \) and \( b \) are constants and \( b > 0 \)

The curve passes through the points (0, 3) and (2, 12)

Calculate the value of \( a \) and \( b \)

\[ a = \ldots \]
\[ b = \ldots \]
The sketch shows a curve with equation $y = ab^x$ where $a$ and $b$ are constants and $b > 0$

The curve passes through the points (1, 14) and (4, 112)

Calculate the value of $a$ and $b$

\[ \begin{align*}
    a &= \ldots \ldots \\
    b &= \ldots \ldots 
\end{align*} \]
The sketch shows a curve with equation $y = ab^x$ where $a$ and $b$ are constants and $b > 0$

The curve passes through the points (2, 90) and (4, 810)

Calculate the value of $a$ and $b$

\[a = \ldots\]
\[b = \ldots\]
The sketch shows a curve with equation $y = ab^x$ where $a$ and $b$ are constants and $b > 0$.

The curve passes through the points $(2, 50)$, $(5, 6250)$ and $(-1, p)$.

Calculate the value of $p$.
8. Draw the graph $y = (0.25)^x$ for values of $x$ from $-3$ to $3$.
9. For each of the following statements, tick “True” or “False.”

(a) The graph \( y = 8^x \) passes through the point \( (0, 1) \)

- True [ ] - False [ ]

(b) The graph \( y = 3^x \) passes through the point \( (3, 9) \)

- True [ ] - False [ ]

(c) The graph \( y = (-2)^x \) passes through the point \( (3, -8) \)

- True [ ] - False [ ]

(d) The graph \( y = 5^x \) passes through the point \( (-1, 0.2) \)

- True [ ] - False [ ]

(e) The graph \( y = 8^x \) passes through the point \( (0, 1) \)

- True [ ] - False [ ]