F.I.F.C.7: Graphing Exponential Functions 1

1 The graph of the equation \( y = m^x \) passes through the point
1) \((1, m)\)
2) \((0, m)\)
3) \((m, 0)\)
4) \((m, 1)\)

2 The graph of the equation \( y = 2^x \) intersects
1) the \(x\)-axis, only
2) the \(y\)-axis, only
3) the \(x\)-axis and the \(y\)-axis
4) neither the \(x\)-axis nor the \(y\)-axis

3 The graph of the function \( f(x) = 3^x \) lies in which quadrant(s)?
1) I, only
2) I and II
3) I and III
4) I and IV

4 Theresa is comparing the graphs of \( y = 2^x \) and \( y = 5^x \). Which statement is true?
1) The \(y\)-intercept of \( y = 2^x \) is \((0, 2)\), and the \(y\)-intercept of \( y = 5^x \) is \((0, 5)\).
2) Both graphs have a \(y\)-intercept of \((0, 1)\), and \( y = 2^x \) is steeper for \( x > 0 \).
3) Both graphs have a \(y\)-intercept of \((0, 1)\), and \( y = 5^x \) is steeper for \( x > 0 \).
4) Neither graph has a \(y\)-intercept.

5 The graph of the function \( f(x) = a^x \) is shown on the accompanying set of axes. On the same set of axes, sketch the reflection of \( f(x) \) in the \(y\)-axis. State the coordinates of the point where the graphs intersect.
6. On the set of axes below, draw the graph of \( y = 2^x \) over the interval \(-1 \leq x \leq 3\). Will this graph ever intersect the \( x \)-axis? Justify your answer.

7. On the set of axes below, graph \( y = 3^x \) over the interval \(-1 \leq x \leq 2\).
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Answer Section

1 ANS: 1 REF: 011720a2

2 ANS: 2 REF: 068430siii

3 ANS: 2 REF: 088434siii

4 ANS: 3
As originally written, alternatives (2) and (3) had no domain restriction, so that both were correct.

REF: 061405a2

5 ANS:

![Graph](image1)

REF: 080721b

6 ANS:

![Graph](image2)

The graph will never intersect the x-axis as $2^x > 0$ for all values of $x$.

REF: 080835ia

7 ANS:

![Graph](image3)

REF: 081233ia