Sample 1

James finds that when he draws the graph of \( f(x) = (x - 1)(x + 2) \), he finds it has the \( x \)-intercepts of -2 and 1, and a \( y \)-intercept of -2.

Which graph represents the function \( f(x) = (x - 1)(x + 2) \)?

A.  
B.  
C.  
D.
<table>
<thead>
<tr>
<th>Answer Choice</th>
<th>Rationale</th>
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<tbody>
<tr>
<td>A.</td>
<td>The student may have used the numbers in the parentheses as the intercepts rather than the stated intercepts and inverted the graph.</td>
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<tr>
<td>B.</td>
<td>The student may have correctly chosen the correct ( x ) -intercepts but has inverted the graph.</td>
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<tr>
<td>C.</td>
<td>Correct Answer; The student has correctly placed the correct intercepts on the ( x )-axis and the ( y )-axis. The student could also create a table of values and plot the graph.</td>
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|               | \[
\begin{array}{c|cccccc}
  x  & -3 & -2 & -1 & 0 & 1 & 2 \\
  f(x) & 4 & 0 & -2 & -2 & 0 & 4 \\
\end{array}
\] |
| D.            | The student may have incorrectly used the numbers in the function, -1 and 2, as the \( x \)-intercepts. |
Sample 2

A diagram of a rotation is shown.

What is the value of $6x + 5y$?

A. 70  
B. 73  
C. 112  
D. 130

**Answer Key**

<table>
<thead>
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| A.            | *Correct Answer*; The student correctly mapped the corresponding side lengths to each other and found the value of $6x + 5y$.  
$12x + 4 = 64$  
$12x = 60$  
$x = 5$  
$3y + 4 = 28$  
$3y = 24$  
$y = 8$  
$6(5) + 5(8) = 70$ |
| B.            | The student correctly mapped the corresponding side lengths to each other. However, when substituting into the expression $6x + 5y$ the student may have switched the values of $x$ and $y$.  
$12x + 4 = 64$ |
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|   | \[12x = 60\]  
   | \[x = 5\]  
   | \[3y + 4 = 2\]  
   | \[3y = 24\]  
   | \[y = 8\]  
   | \[6(8) + 5(5) = 73\]  
---|---|
| **C.** | The student may have incorrectly mapped the corresponding side lengths to each other and found the value of \[6x + 5y\].  
   | \[12x + 4 = 28\]  
   | \[12x = 24\]  
   | \[x = 2\]  
   | \[3y + 4 = 64\]  
   | \[3y = 60\]  
   | \[y = 20\]  
   | \[6(2) + 5(20) = 112\]  
---|---|
| **D.** | The student may have incorrectly mapped the corresponding side lengths to each other. When substituting into the expression \[6x + 5y\], the student may have switched the values of \(x\) and \(y\).  
   | \[12x + 4 = 28\]  
   | \[12x = 24\]  
   | \[x = 2\]  
   | \[3y + 4 = 64\]  
   | \[3y = 60\]  
   | \[y = 20\]  
   | \[6(20) + 5(2) = 130\]  
---|---|