### Mathematics Self-Efficacy Scale for Future Teachers (MaSE-T)

by Christine Bescherer, Christian Spannagel, and Marc Zimmermann

In this questionnaire you are asked to indicate the extent to which you, personally, are confident to solve the following mathematical problems.

You should NOT solve the problems! You should only estimate, whether you are CONFIDENT to solve the problem.

Please mark every row with only one cross. Please don’t miss a row!

<table>
<thead>
<tr>
<th>I feel confident to…</th>
<th>I am not at all confident</th>
<th>I am totally confident</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>… solve the system of equations with ( x + y = -7 ) and ( x \cdot y = -30 ).</td>
<td>□</td>
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<tr>
<td>… calculate the capacity of a water barrel.</td>
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<tr>
<td>… determine the solution of fraction equations like ( \frac{b-k}{b} = c ) (c and k are constants and natural numbers).</td>
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<tr>
<td>… estimate whether a 2.5 meter long board can be transported in a van.</td>
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<td>□</td>
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<tr>
<td>… reason why three is always a factor of the sum of three successive natural numbers.</td>
<td>□</td>
<td>□</td>
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<tr>
<td>… solve equations like ( \frac{x}{x+6} + \frac{x}{x+1} + \frac{x}{2x} = 1 ) and ( \frac{t}{\frac{2}{3}+6} + \frac{t}{\frac{2}{3}+1} = 1 ) for x and for t respectively.</td>
<td>□</td>
<td>□</td>
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<tr>
<td>… find an argument why 491 is a prime number.</td>
<td>□</td>
<td>□</td>
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<tr>
<td>… solve the following task: A room is to be painted. Adam, Betty, and Cedric will need 6 hours less than Adam on his own for painting the room. They also will need one hour less then Betty by herself and half as long as Cedric. How long do Adam and Betty need for painting the room together?</td>
<td>□</td>
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<tr>
<td>… reason that a natural number can divided by ‘4’ if and only if the number built up by the last two digits of this number can be divided by ‘4’.</td>
<td>□</td>
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<tr>
<td>… proof that ( \sqrt{2} ) cannot be represented by a fraction.</td>
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<tr>
<td>… solve kinds of equations like ( k \cdot p^x = c ) for x as unknown (k, p, and c are constant real numbers).</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>I feel confident to…</td>
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</tr>
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<tr>
<td></td>
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<tr>
<td>… give the number of people sitting in a room by knowing that originally the number</td>
<td>☐</td>
<td>☐</td>
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<td>of males and females were identical and further after 8 females left the room the</td>
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<tr>
<td>number of males is twice as much as females.</td>
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<tr>
<td>… explain, how five numbers between 0.1 and 9.9 have to be chosen to get an average</td>
<td>☐</td>
<td>☐</td>
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<td>of 6.3.</td>
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<tr>
<td>… determine, whether there is a number of persons to divide 313 sweets equally and</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>every person gets more than 2 sweets.</td>
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<tr>
<td>… identify the extremum of the function f(x) = -x² + bx.</td>
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<td>☐</td>
</tr>
</tbody>
</table>

Please check again if you have marked every row with only one cross and that you have not missed a row!

Thank you for your participation! 😊