
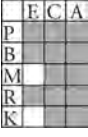

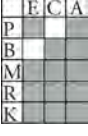
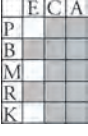




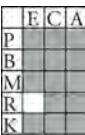







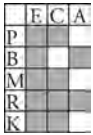

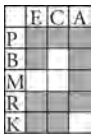

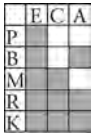




|        |  |   |   |
|--------|--|---|---|
| 19.    | <b>19 h 30 min; 19,5 h</b><br>Korrekt svar.  | <b>(2/0/0)</b><br>+E <sub>B</sub> +E <sub>M</sub>                       |    |
| 20.    | <b>3 750 000; 3,75 miljoner; ca 3,8 miljoner</b><br>Redovisar godtagbar metod vid beräkning av procentuell andel med godtagbart svar.  | <b>(2/0/0)</b><br>+E <sub>M</sub><br>+E <sub>K</sub>                    |    |
| 21. a) | <b>621,2 (g); 621 (g)</b><br>Påbörjad lösning, t.ex. beräknar vikten i mg.<br>Redovisning med korrekt svar.  | <b>(2/0/0)</b><br>+E <sub>M</sub><br>+E <sub>K</sub>                    |    |
| b)     | <b>530 (carat)</b><br>Påbörjad lösning, t.ex. korrekt enhetsbyte.<br>Lösning med lämplig metod och korrekt svar.   | <b>(1/1/0)</b><br>+E <sub>B</sub><br>+C <sub>P</sub>                    |    |
| 22.    | <b>6 dagar; 6 <math>\frac{1}{3}</math> dagar; 6,3 dagar</b><br>Påbörjad lösning, t.ex. beräknar utgifter per dag.<br>Använder godtagbar metod för att bestämma antalet dagar.<br>Redovisning med godtagbart svar.  | <b>(3/0/0)</b><br>+E <sub>P</sub><br>+E <sub>M</sub><br>+E <sub>K</sub> |   |
| 23.    | <b>26 år; 25 år och 10 månader</b><br>Använder godtagbar metod för att bestämma tiden, t.ex. tecknar ett divisionsuttryck.<br>Tolkar resultat och anger en godtagbar tid, t.ex. 310 månader.<br>Tydlig redovisning med godtagbart svar angivet med rimlig enhet.<br> <i>Till uppgiften finns bedömda elevarbeten.</i> | <b>(2/1/0)</b><br>+E <sub>M</sub><br>+E <sub>P</sub><br>+C <sub>K</sub> |  |

|        |   |  |   |
|--------|---|--|---|
| 24.    | <p><b>Nej, det stämmer inte</b></p> <p>Påbörjad lösning, ersätter <math>h</math> med 200 m.</p> <p>Lösning med korrekt beräkning (avståndet är cirka 50 km).</p> <p>Tydlig redovisning med lämpligt matematiskt språk och korrekt slutsats.</p>  <i>Till uppgiften finns bedömda elevarbeten.</i>  | <p><b>(0/3/0)</b></p> <p><math>+C_P</math></p> <p><math>+C_M</math></p> <p><math>+C_K</math></p> |    |
| 25. a) | <p><b>Kevin syftar på folkmängden medan Veronica syftar på arean</b></p> <p>Godtagbar motivering.</p>   | <p><b>(1/0/0)</b></p> <p><math>+E_R</math></p>   |    |
| b)     | <p><b>Diagram 2</b></p> <p>Korrekt svar med någon motivering, t.ex. diagram 2, eftersom stapel A (10,5) och B (10,3) är nästan lika höga.</p>   | <p><b>(2/0/0)</b></p> <p><math>+E_P + E_R</math></p>   |    |
| c)     | <p><b>Svar i intervallet 275–280 miljoner med lämpligt antal värdesiffror</b></p> <p>Påbörjad lösning, t.ex. beräknar/tecknar kvoten för folktätheten i Gauteng.</p> <p>Lösningen visar en godtagbar metod för att lösa hela uppgiften.</p> <p>Tydlig redovisning med godtagbart svar med lämpligt antal värdesiffror.</p>  <i>Till uppgiften finns bedömda elevarbeten.</i> | <p><b>(0/3/0)</b></p> <p><math>+C_P</math></p> <p><math>+C_M</math></p> <p><math>+C_K</math></p> |   |
| 26. a) | <p><b>4 (m/s)</b></p> <p>Påbörjad lösning, t.ex. gör enhetsbyte från minuter till sekunder eller beräknar medelfart i m/min.</p> <p>Redovisning med korrekt svar.</p>   | <p><b>(2/0/0)</b></p> <p><math>E_B</math></p> <p><math>E_K</math></p>                            |  |
| b)     | <p><b>4,1 m; 4,07 m</b></p> <p>Påbörjad lösning som visar beräkning av bottenytans area.</p> <p>Använder lämplig formel vid beräkning av radien/diametern.</p> <p>Löser hela problemet och ger ett godtagbart svar med högst tre värdesiffror.</p>  <i>Till uppgiften finns bedömda elevarbeten.</i>   | <p><b>(1/1/1)</b></p> <p><math>+E_P</math></p> <p><math>+C_M</math></p> <p><math>+A_P</math></p> |  |

|     |  |   |   |
|-----|--|---|---|
| c)  | <p><b>1 086 meter över havet; 1 085,7 meter över havet</b></p> <p>Påbörjad lösning där Pythagoras sats tecknas korrekt.</p> <p>Beräknar efterfrågad katet korrekt med hjälp av Pythagoras sats.</p> <p>Tydlig och välstrukturerad redovisning med korrekt matematiskt språk.</p> <p>Löser hela problemet med godtagbart svar.</p> <p> <i>Till uppgiften finns bedömda elevarbeten.</i></p>  | <p><b>(0/1/3)</b></p> <p>+C<sub>B</sub></p> <p>+A<sub>M</sub></p> <p>+A<sub>K</sub></p> <p>+A<sub>P</sub></p> |    |
| 27. | <p><b>Svar i intervallet 4,5 km<sup>2</sup> – 5,1 km<sup>2</sup> eller i intervallet 4,5 · 10<sup>6</sup> m<sup>2</sup> – 5,1 · 10<sup>6</sup> m<sup>2</sup></b></p> <p>Mäter relevanta sträckor på kartan.</p> <p>Beräknar arean av parallelltrapetsen genom att använda formel eller beräkna delareor.</p> <p>Använder längdskalan/areaskalan korrekt för att beräkna sträckor/areor i verkligheten.</p> <p>Tydlig och välstrukturerad redovisning med korrekt matematiskt språk och godtagbart svar med högst tre värdesiffror.</p> <p> <i>Till uppgiften finns bedömda elevarbeten.</i></p> | <p><b>(1/2/1)</b></p> <p>+E<sub>M</sub></p> <p>+C<sub>M</sub></p> <p>+C<sub>B</sub></p> <p>+A<sub>K</sub></p> |    |
| 28. | <p><b>3 (km<sup>2</sup>)</b></p> <p>Lösning som visar hur basytans area kan bestämmas genom att använda sambandet mellan volym och höjd.</p> <p>Bestämmer arean i någon areaenhet, t.ex. m<sup>2</sup>.</p> <p>Löser hela problemet med korrekt svar i km<sup>2</sup>.</p> <p>Lösningen visar dessutom en ändamålsenlig metod med korrekta enhetsbyten.</p> <p> <i>Till uppgiften finns bedömda elevarbeten.</i></p>  | <p><b>(0/2/2)</b></p> <p>+C<sub>P</sub></p> <p>+C<sub>B</sub></p> <p>+A<sub>P</sub></p> <p>+A<sub>M</sub></p> |  |

|                      |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
|----------------------|---|---|---|--|---|---|---|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|
| <p><b>29. a)</b></p> | <p><b>2 500 (svarta noshörningar)</b></p> <p>Lösning där ökningen relaterar till antalet noshörningar år 1995.</p> <p>Redovisar ändamålsenlig metod.</p> <p>Tydlig redovisning med lämpligt matematiskt språk och korrekt svar.</p> <p> <i>Till uppgiften finns bedömda elevarbeten.</i></p>   | <p><b>(0/3/0)</b></p> <p>+C<sub>B</sub></p> <p>+C<sub>M</sub></p> <p>+C<sub>K</sub></p> | <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table> |  | E | C | A | P |  |  |  | B |  |  |  | M |  |  |  | R |  |  |  | K |  |  |  |
|                      | E   | C   | A   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| P                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| B                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| M                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| R                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| K                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| <p><b>b)</b></p>     | <p><b>16 000; 16 400; 16 384 (noshörningar)</b></p> <p>Lösning som visar förståelse för upprepad procentuell ökning.</p> <p>Tydlig redovisning med lämpligt matematiskt språk och godtagbart svar.</p> <p>Lösningen visar dessutom en effektiv metod genom användandet av förändringsfaktor.</p> <p><i>Följdfel från 29a, där lösningen baseras på fel antal noshörningar 1995, ger samma bedömning som om antalet var korrekt.</i></p> <p> <i>Till uppgiften finns bedömda elevarbeten.</i></p> | <p><b>(0/2/1)</b></p> <p>+C<sub>B</sub></p> <p>+C<sub>K</sub></p> <p>+A<sub>M</sub></p> | <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table> |  | E | C | A | P |  |  |  | B |  |  |  | M |  |  |  | R |  |  |  | K |  |  |  |
|                      | E   | C   | A   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| P                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| B                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| M                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| R                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |
| K                    |   |   |   |  |   |   |   |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |   |  |  |  |

## Bedömda elevarbeten till Delprov D


Bedömda elevarbeten till uppgift 23

Max (2/1/0)

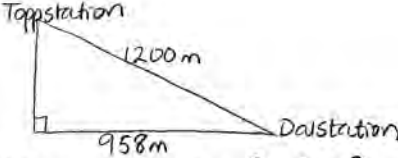
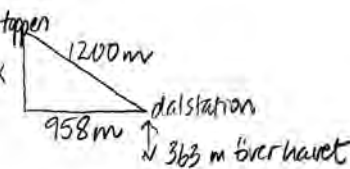
|   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
|---|---|---|---|---|---|---|---|--|--|---|--|--|--|---|---|--|--|---|--|--|--|---|--|---|--|
| <p>Elevarbete 1</p> $\frac{155}{0,5} = 310 \text{ Svar: } 310 \text{ dagar}$  | <p>1/0/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td>X</td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td>X</td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>  |   | E | C | A | P | X |  |  | B |  |  |  | M | X |  |  | R |  |  |  | K |  |   |  |
|   | E   | C | A |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| P   | X   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| B   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| M   | X   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| R   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| K   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 2</p> $0,5 \text{ cm} \cdot 2 = 1 \text{ cm}$ $1 \text{ cm} \cdot 100 = 1 \text{ m} = 200 \text{ mån}$ $1 \text{ cm} \cdot 55 = 55 \text{ cm} = 110 \text{ mån}$ $200 + 110 = 310$ <p>Svar: 310 månader</p>                               | <p>2/0/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td>X</td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td>X</td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>  |   | E | C | A | P | X |  |  | B |  |  |  | M | X |  |  | R |  |  |  | K |  |   |  |
|   | E   | C | A |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| P   | X   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| B   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| M   | X   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| R   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| K   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 3</p> $1,55 \text{ m} = 155 \text{ cm}$ $0,5 \cdot 12 = 6 \text{ cm p\u00e5 ett \u00e5r}$ $\frac{155}{6} = 25,8333\dots$ $(25,85 \cdot 6 = 155,1)$ <p>Svar: Det tar n\u00e4stan 26 \u00e5r f\u00f6ratt det ska bli 1,55 m l\u00e4ngt.</p> | <p>2/1/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td>X</td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td>X</td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </table> |   | E | C | A | P | X |  |  | B |  |  |  | M | X |  |  | R |  |  |  | K |  | X |  |
|   | E   | C | A |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| P   | X   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| B   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| M   | X   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| R   |   |   |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |
| K   |   | X |   |   |   |   |   |  |  |   |  |  |  |   |   |  |  |   |  |  |  |   |  |   |  |

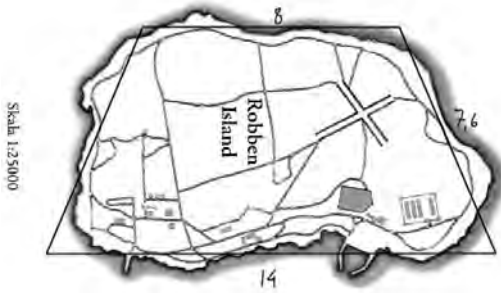

|  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
|--|--|---|---|---|---|---|--|---|--|---|--|--|--|---|--|---|--|---|--|--|--|---|--|---|--|
| <p>Elevarbete 1</p> $h = 200 \quad \sqrt{13 \cdot 200} = 14,14$ <p>Nej det tror jag inte för då skulle det stå 10 istället för 14,14</p> | <p>0/1/0</p> <table border="1"> <tbody> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </tbody> </table>   |   | E | C | A | P |  | X |  | B |  |  |  | M |  |   |  | R |  |  |  | K |  |   |  |
|  | E  | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P  |  | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| K  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 2</p> $\sqrt{13 \cdot 200} \approx 50$ <p>fel!</p> <p>Kommentar: Enhet saknas.</p>   | <p>0/2/0</p> <table border="1"> <tbody> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </tbody> </table>  |   | E | C | A | P |  | X |  | B |  |  |  | M |  | X |  | R |  |  |  | K |  |   |  |
|  | E  | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P  |  | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M  |  | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| K  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 3</p> $\sqrt{13 \cdot 200} = \sqrt{2600} = 50,9902 \approx 51 \text{ km}$ <p>Nej, hon har fel.</p>                         | <p>0/3/0</p> <table border="1"> <tbody> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </tbody> </table> |   | E | C | A | P |  | X |  | B |  |  |  | M |  | X |  | R |  |  |  | K |  | X |  |
|  | E  | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P  |  | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M  |  | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R  |  |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
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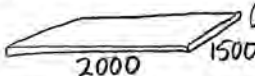
|   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
|---|---|---|---|---|---|---|--|---|--|---|--|--|--|---|--|---|--|---|--|--|--|---|--|---|--|
| <p>Elevarbete 1</p> $\text{Gauteng} = \frac{10500000 \text{ pers.}}{17000 \text{ km}^2} = 617,6470588 \approx 618 \text{ pers/km}^2$ $\text{Sverige} = \frac{9,200000 \text{ pers.}}{450000 \text{ km}^2} = 20,444 \approx 20 \text{ pers/km}^2$  | <p>0/1/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>   |   | E | C | A | P |  | X |  | B |  |  |  | M |  |   |  | R |  |  |  | K |  |   |  |
|   | E   | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
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| B   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| K   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 2</p> $\frac{10,5}{17} \cdot 450 = 277,9$ <p>Svar: 277,9 miljoner människor.</p>  | <p>0/2/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>  |   | E | C | A | P |  | X |  | B |  |  |  | M |  | X |  | R |  |  |  | K |  |   |  |
|   | E   | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P   |   | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
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| R   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| K   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 3</p> $\text{Gautengs folktätthet} = \frac{10,5}{17} \approx 0,6 \text{ pers/km}^2$ $\text{Sveriges folktätthet} = \frac{9,2}{450} \approx 0,02 \text{ pers/km}^2$ <p>0,02 är 30 gånger mindre än 0,6.<br/>För att Sverige skulle få samma folktätthet skulle befolkningen behöva bli 30 gånger så stor</p> $9,2 \cdot 30 = 276$ <p>Svar: Det skulle behöva bli 276 milj. människor i Sverige.</p> <p>Kommentar: Eleven avrundar inne i beräkningarna, vilket kan anses godtagbart då ett ungefärligt värde ska beräknas.</p> | <p>0/3/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </table> |   | E | C | A | P |  | X |  | B |  |  |  | M |  | X |  | R |  |  |  | K |  | X |  |
|   | E   | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P   |   | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M   |   | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
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| <p>Elevarbete 4</p> <p>Gauteng: folkmängd 10,5 milj area 17000 km<sup>2</sup><br/>milj befolkning/1000 km<sup>2</sup> <math>\frac{10,5}{17} = 0,617</math></p> <p>Sverige area 450 ny folkmängd x<br/>folktätthet 0,617 milj befolkning/1000 km<sup>2</sup></p> $\frac{x}{450} = 0,617$ $x = 0,617 \cdot 450$ $x \approx 278$ <p>Svar: 278 milj invånare</p>  | <p>0/3/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </table> |   | E | C | A | P |  | X |  | B |  |  |  | M |  | X |  | R |  |  |  | K |  | X |  |
|   | E   | C | A |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P   |   | X |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
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| R   |   |   |   |   |   |   |  |   |  |   |  |  |  |   |  |   |  |   |  |  |  |   |  |   |  |
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|--|--|---|---|---|---|---|---|--|---|---|--|--|--|---|--|---|--|---|--|--|--|---|--|--|--|
| <p>Elevarbete 1</p> $65 \cdot 0,20 = 13 \text{ m}^2$ $\frac{13}{\pi} \approx 4,14 \quad 4,14 + 4,14 = 8,28$  | <p>1/0/0</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td>X</td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>   |   | E | C | A | P | X |  |   | B |  |  |  | M |  |   |  | R |  |  |  | K |  |  |  |
|  | E  | C | A |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| P  | X  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| B  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| M  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| R  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| K  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| <p>Elevarbete 2</p> $0,20 \text{ m}^2/\text{person}$ $0,20 \text{ m}^2 \cdot 65 = 13 \text{ m}^2$  $\text{Area} = 3,14 \cdot r^2$ $13 \text{ m}^2 = 3,14 \cdot r^2$ $\frac{13 \text{ m}^2}{3,14} = r^2$ $4,1 \approx r^2$ $r^2 = 4,1^2 = 16,81$ <p>Svar: Diametern är 33,62 m</p> <p>Kommentar: Eleven använder lämplig formel.</p> | <p>1/1/0</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td>X</td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>  |   | E | C | A | P | X |  |   | B |  |  |  | M |  | X |  | R |  |  |  | K |  |  |  |
|  | E  | C | A |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| P  | X  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| B  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| M  |  | X |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| R  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| K  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| <p>Elevarbete 3</p> <p>Gulvyta för 65 personer <math>65 \cdot 0,2 = 13 \text{ m}^2</math></p> <p>Radie: <math>r^2 \cdot \pi = 13 \text{ m}^2</math></p> $r = \sqrt{\frac{13}{\pi}}$ $r = 2,034 \dots \text{ m} \approx 2 \text{ m}$ <p>Diameter: <math>2 \cdot 2 = 4 \text{ m}</math></p>  | <p>1/1/1</p> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td>X</td><td></td><td>X</td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table> |   | E | C | A | P | X |  | X | B |  |  |  | M |  | X |  | R |  |  |  | K |  |  |  |
|  | E  | C | A |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| P  | X  |   | X |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| B  |  |   |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
| M  |  | X |   |   |   |   |   |  |   |   |  |  |  |   |  |   |  |   |  |  |  |   |  |  |  |
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|--|--|---|---|---|---|---|--|--|---|---|--|---|--|---|--|--|---|---|--|--|--|---|--|--|---|
| <p>Elevarbete 1</p> <p>c) <math>x^2 + 958^2 = 1200^2</math><br/> <math>x^2 + 917764 = 1440000</math><br/> <math>x^2 + 917764 - 917764 = 1440000 - 917764</math><br/> <math>x^2 = 522236</math></p>   | <p>0/1/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>    |   | E | C | A | P |  |  |   | B |  | X |  | M |  |  |   | R |  |  |  | K |  |  |   |
|  | E  | C | A |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| P  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| B  |  | X |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| M  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| K  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| <p>Elevarbete 2</p> <p>c) </p> <p>Pythagoras sats: <math>a^2 + b^2 = c^2</math> (<math>c^2 - a^2 = b^2</math>)<br/> <math>1200^2 - 958^2 = x^2</math><br/> <math>1440000 - 917764 = x^2</math><br/> <math>\sqrt{522236} = \sqrt{x^2}</math><br/> <math>722,6 \approx x</math><br/> <math>723 \approx x</math></p> <p>Svar: Toppstation ligger på 723 m över havet.</p>              | <p>0/1/2</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td>X</td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td>X</td></tr> </table>  |   | E | C | A | P |  |  |   | B |  | X |  | M |  |  | X | R |  |  |  | K |  |  | X |
|  | E  | C | A |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| P  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| B  |  | X |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| M  |  |   | X |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| K  |  |   | X |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| <p>Elevarbete 3</p> <p>c) </p> <p>Pyth sats: <math>a^2 + b^2 = c^2</math><br/> <math>958^2 + x^2 = 1200^2</math><br/> <math>917768 + x^2 = 1440000</math><br/> <math>x^2 = 1440000 - 917764</math><br/> <math>x^2 = 522236</math><br/> <math>\sqrt{x^2} = \sqrt{522236}</math><br/> <math>x = 722,6 \approx 723</math></p> <p><math>723 + 363 = 1086</math> m Svar: ca 1086 m</p> | <p>0/1/3</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td>X</td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td>X</td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td>X</td></tr> </table> |   | E | C | A | P |  |  | X | B |  | X |  | M |  |  | X | R |  |  |  | K |  |  | X |
|  | E  | C | A |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| P  |  |   | X |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| B  |  | X |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| M  |  |   | X |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |   |
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|--|--|---|---|---|---|---|--|--|--|---|---|--|--|---|---|---|--|---|--|--|--|---|--|--|---|
| <p>Elevarbete 1</p> <p>Parallelltrapetsens mått <math>7,6 \cdot 8 \cdot 14</math><br/>                     Rektangeln inuti <math>8 \cdot 7,6 = 60,8 \text{ cm}^2</math><br/>                     De två trianglarna på sidorna är tillsammans <math>6 \cdot 7,6</math><br/> <math>6 \cdot 7,6 = \frac{45,6}{2} = 22,8 \text{ cm}^2</math></p> <p><math>60,8 + 22,8 = 83,6 \text{ cm}^2</math><br/> <math>83,6 \text{ cm}^2 \cdot 25000 = \frac{2090000 \text{ cm}^2}{1000} = 2090 \text{ km}^2</math></p>  <p>Skala 1:25000</p>   | <p>0/0/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>     |   | E | C | A | P |  |  |  | B |   |  |  | M |   |   |  | R |  |  |  | K |  |  |   |
|  | E  | C | A |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| P  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| B  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| M  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| K  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| <p>Elevarbete 2</p> <p>A : 14 cm<br/>                     B : 8 cm<br/>                     höjden : 7,1 cm</p> <p><math>\frac{7,1 \cdot 14 + 8}{2} = 107,4 \text{ cm}^2</math><br/> <math>107,4 \cdot 25000 = 2685000 \text{ cm}^2</math><br/>                     Svar: <math>2685000 \text{ cm}^2</math></p>  <p>Skala 1:25000</p>   | <p>1/0/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td>X</td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>    |   | E | C | A | P |  |  |  | B |   |  |  | M | X |   |  | R |  |  |  | K |  |  |   |
|  | E  | C | A |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| P  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| B  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| M  | X  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| K  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| <p>Elevarbete 3</p> <p>H = 7 cm<br/>                     A = 8 cm<br/>                     B = 14 cm</p> <p><math>8 + 14 = 22 \text{ cm}</math><br/> <math>7 \cdot 22 = \frac{154}{2} = 77 \text{ cm}^2</math><br/> <math>77 \cdot 25000 = 1925000 \text{ cm}^2</math><br/>                     Svar: Areal på Robben Island är <math>1925000 \text{ cm}^2</math></p> <p>Kommentar: Eleven beräknar parallelltrapetsets area korrekt men använder därefter längdskala.</p>   | <p>1/1/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td>X</td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>   |   | E | C | A | P |  |  |  | B |   |  |  | M | X | X |  | R |  |  |  | K |  |  |   |
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| P  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| B  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| M  | X  | X |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| K  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| <p>Elevarbete 4</p> <p>Den ena sidans längd <math>\text{Ⓢ} = 8 \text{ cm}</math><br/>                     Längden i verkligheten = <math>8 \cdot 25000 = 2 \text{ km}</math><br/>                     Den andra sidans längd <math>\text{Ⓢ} = 14 \text{ cm}</math><br/>                     Längden i verkligheten = <math>14 \cdot 25000 = 3,5 \text{ km}</math><br/>                     Parallelltrapetsets höjd : 7 cm<br/>                     Höjden i verkligheten : <math>7 \cdot 25000 = 1,75 \text{ km}</math><br/>                     Areal : <math>\frac{1,75 (2 + 3,5)}{2} =</math><br/> <math>\frac{1,75 \cdot 5,5}{2} = \frac{9,625}{2} = 4,8125 \text{ km}^2</math><br/>                     Svar: Areal är ungefär <math>4,8 \text{ km}^2</math></p> | <p>1/2/1</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td>X</td><td></td><td></td></tr> <tr><td>M</td><td>X</td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td>X</td></tr> </table> |   | E | C | A | P |  |  |  | B | X |  |  | M | X | X |  | R |  |  |  | K |  |  | X |
|  | E  | C | A |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| P  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| B  | X  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| M  | X  | X |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
| R  |  |   |   |   |   |   |  |  |  |   |   |  |  |   |   |   |  |   |  |  |  |   |  |  |   |
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|---|--|---|---|---|---|---|--|---|---|---|--|---|--|---|--|--|---|---|--|--|--|---|--|--|--|
| <p>Elevarbete 1</p> $\frac{6 \text{ m}^3}{0,002 \text{ mm}} = 3000 \text{ m} = 3 \text{ km}$ <p>Svar: Den täcker 3 km.</p>  | <p>0/1/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td></td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>    |   | E | C | A | P |  | X |   | B |  |   |  | M |  |  |   | R |  |  |  | K |  |  |  |
|   | E  | C | A |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| P   |  | X |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| B   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| M   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| R   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| K   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| <p>Elevarbete 2</p> $0,002 \text{ mm} = 0,000002 \text{ m}$ $\frac{6 \text{ m}^3}{\text{höjden}} = \frac{6 \text{ m}^3}{0,000002} = 3000000 \text{ m}^2$ $\frac{3000 \cancel{\text{m}^3}}{1 \cancel{\text{m}^3}} = 3000 \text{ km}^2$ <p>3000 km<sup>2</sup></p> <p>Kommentar: Eleven gör ett felaktigt enhetsbyte.</p>   | <p>0/2/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>   |   | E | C | A | P |  | X |   | B |  | X |  | M |  |  |   | R |  |  |  | K |  |  |  |
|   | E  | C | A |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| P   |  | X |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| B   |  | X |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| M   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| R   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| K   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| <p>Elevarbete 3</p> $0,002 \text{ mm} \quad 6 \text{ m}^3 = 6000 \text{ dm}^3$  $0,002 \text{ mm} = 0,000002 \text{ m}$ $V = b \cdot h = b \cdot d \cdot h = 2000 \text{ m} \cdot 1500 \text{ m} \cdot 0,000002$ $V = 6 \text{ m}^3$ $A = b \cdot h = 2000 \cdot 1500 = 3000000 \text{ m}^2 = 3 \text{ km}^2$ <p>Svar: 3 km<sup>2</sup> täcker oljan</p> <p>Kommentar: Eleven löser uppgiften genom prövning.</p> | <p>0/2/1</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td>X</td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>  |   | E | C | A | P |  | X | X | B |  | X |  | M |  |  |   | R |  |  |  | K |  |  |  |
|   | E  | C | A |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| P   |  | X | X |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| B   |  | X |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| M   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| R   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| K   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| <p>Elevarbete 4</p> $6 \text{ m}^3 \text{ olja}$ $0,002 \text{ mm} = 0,000002 \text{ m}$ $\frac{6 \text{ m}^3}{0,000002 \text{ m}} = 3000000 \text{ m}^2 = 3 \text{ km}^2$ <p>Svar: 3 km<sup>2</sup></p>  | <p>0/2/2</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td>X</td><td>X</td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td>X</td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table> |   | E | C | A | P |  | X | X | B |  | X |  | M |  |  | X | R |  |  |  | K |  |  |  |
|   | E  | C | A |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| P   |  | X | X |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| B   |  | X |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| M   |  |   | X |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
| R   |  |   |   |   |   |   |  |   |   |   |  |   |  |   |  |  |   |   |  |  |  |   |  |  |  |
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|--|--|---|---|---|---|---|--|--|--|---|--|---|--|---|--|---|--|---|--|--|--|---|--|---|--|
| <p>Elevarbete 1</p> <p>a) Det fanns 2500 st</p> $60\% \text{ av } 2500 = 1500$ $2500 + 1500 = 4000$ <p>Kommentar: Eleven verifierar sina värden men visar ingen ändamålsenlig metod.</p> | <p>0/1/0</p> <table border="1"> <tbody> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </tbody> </table>   |   | E | C | A | P |  |  |  | B |  | X |  | M |  |   |  | R |  |  |  | K |  |   |  |
|  | E  | C | A |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B  |  | X |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| K  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| <p>Elevarbete 2</p> <p>a) <math>x =</math> antalet svarta noshörningar 1995</p> $\frac{1,6x}{1,6} = \frac{4000}{1,6}$ $x = 2500$ <p>förändringsfaktor = procentuell förändringen + 1</p> | <p>0/3/0</p> <table border="1"> <tbody> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td>X</td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </tbody> </table> |   | E | C | A | P |  |  |  | B |  | X |  | M |  | X |  | R |  |  |  | K |  | X |  |
|  | E  | C | A |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| P  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| B  |  | X |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| M  |  | X |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| R  |  |   |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |
| K  |  | X |   |   |   |   |  |  |  |   |  |   |  |   |  |   |  |   |  |  |  |   |  |   |  |

|  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
|--|---|---|---|---|---|---|--|--|--|---|--|---|--|---|--|--|---|---|--|--|--|---|--|---|--|
| <p>Elevarbete 1</p> <p>b) <math>4000 + 2400 = 6400 + 3840 = 10240 + 6144</math><br/> <math>16384</math> st är 2035</p> <p>Kommentar: Eleven brister i redovisningen och använder inte ett lämpligt matematiskt språk.</p>  | <p>0/1/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td></td><td></td></tr> </table>   |   | E | C | A | P |  |  |  | B |  | X |  | M |  |  |   | R |  |  |  | K |  |   |  |
|  | E   | C | A |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| P  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| B  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| M  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| R  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| K  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| <p>Elevarbete 2</p> <p>b) <math>2005 \xrightarrow{60\%} 2015 \xrightarrow{60\%} 2025 \xrightarrow{60\%} 2035</math><br/> <math>60\%</math> av <math>4000 = 2400</math></p> $\begin{array}{r} 4000 \\ + 2400 \\ \hline 6400 \end{array}$ <p><math>10\%</math> av <math>6400 = 640</math><br/> <math>60\%</math> av <math>6400 = 3840</math></p> $\begin{array}{r} 6400 \\ + 3840 \\ \hline 10240 \end{array}$ <p><math>10\%</math> av <math>10240 = 1024</math><br/> <math>60\%</math> av <math>10240 = 6144</math></p> $\begin{array}{r} 10240 \\ + 6144 \\ \hline 16384 \end{array}$ <p>Svar: Om det fortsätter i samma takt kommer det år 2035 att finnas 16384 noshörningar.</p> <p>Kommentar: Eleven använder en omständlig metod.</p> | <p>0/2/0</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td></td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </table>  |   | E | C | A | P |  |  |  | B |  | X |  | M |  |  |   | R |  |  |  | K |  | X |  |
|  | E   | C | A |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| P  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| B  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| M  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| R  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| K  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| <p>Elevarbete 3</p> <p>b) <math>4000 \cdot 1,6 = 6400</math> } år 2015<br/> <math>6400 \cdot 1,6 = 10240</math> } år 2025<br/> <math>10240 \cdot 1,6 = 16384</math> } år 2035</p> <p>Svar: 16384 st noshörningar</p>   | <p>0/2/1</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td>X</td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </table> |   | E | C | A | P |  |  |  | B |  | X |  | M |  |  | X | R |  |  |  | K |  | X |  |
|  | E   | C | A |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| P  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| B  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| M  |   |   | X |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| R  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| K  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| <p>Elevarbete 4</p> <p>b) <math>2035 - 2005 = 30</math>    <math>30/10 = 3</math></p> <p>Upprepningen sker 3 gånger</p> <p><math>4000 \cdot 1,6^3 = 4000 \cdot 4,096 = 16384</math>    Svar: 16384 st</p>  | <p>0/2/1</p> <table border="1"> <tr><td></td><td>E</td><td>C</td><td>A</td></tr> <tr><td>P</td><td></td><td></td><td></td></tr> <tr><td>B</td><td></td><td>X</td><td></td></tr> <tr><td>M</td><td></td><td></td><td>X</td></tr> <tr><td>R</td><td></td><td></td><td></td></tr> <tr><td>K</td><td></td><td>X</td><td></td></tr> </table> |   | E | C | A | P |  |  |  | B |  | X |  | M |  |  | X | R |  |  |  | K |  | X |  |
|  | E   | C | A |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| P  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| B  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| M  |   |   | X |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| R  |   |   |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |
| K  |   | X |   |   |   |   |  |  |  |   |  |   |  |   |  |  |   |   |  |  |  |   |  |   |  |