**Rekenkaart aangepast rekenexamen studiejaar 2023-2024**

**AANVULLENDE KAART**

|  |
| --- |
| Deze kaart mag worden gebruikt bij het **aangepaste rekenexamen** (het ER-examen) door iedereen die aan dit examen deelneemt. Bij het **aangepaste rekenexamen** mag bij alle opgaven een rekenmachine worden gebruikt (eigen rekenmachine of computerrekenmachine). |

**Getallen**

|  |  |
| --- | --- |
| 1 |  één |
| 10 |  tien |
| 100 |  honderd |
| 1000 |  duizend |
| 10 000 |  tienduizend |
| 100 000 |  honderdduizend |
| 0,5 miljoen = 500 000 |  half miljoen of vijfhonderdduizend |
| 1 000 000 |  miljoen |
| 10 000 000 |  tien miljoen |
| 100 000 000 |  honderd miljoen |
| 0,5 miljard = 500 000 000 |  half miljard of vijfhonderd miljoen |
| 1 000 000 000 |  miljard |
| 10 000 000 000 |  tien miljard |

**Tafels en delen**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 x 1 = 1 | 1 x 2 = 2 | 1 x 3 = 3 | 1 x 4 = 4 | 1 x 5 = 5 | 1 x 6 = 6 | 1 x 7 = 7 | 1 x 8 = 8 | 1 x 9 = 9 | 1 x 10 = 10 |
| 2 x 1 = 2 | 2 x 2 = 4 | 2 x 3 = 6 | 2 x 4 = 8 | 2 x 5 = 10 | 2 x 6 = 12 | 2 x 7 = 14 | 2 x 8 = 16 | 2 x 9 = 18 | 2 x 10 = 20 |
| 3 x 1 = 3 | 3 x 2 = 6 | 3 x 3 = 9 | 3 x 4 = 12 | 3 x 5 = 15 | 3 x 6 = 18 | 3 x 7 = 21 | 3 x 8 = 24 | 3 x 9 = 27 | 3 x 10 = 30 |
| 4 x 1 = 4 | 4 x 2 = 8 | 4 x 3 = 12 | 4 x 4 = 16 | 4 x 5 = 20 | 4 x 6 = 24 | 4 x 7 = 28 | 4 x 8 = 32 | 4 x 9 = 36 | 4 x 10 = 40 |
| 5 x 1 = 5 | 5 x 2 = 10 | 5 x 3 = 15 | 5 x 4 = 20 | 5 x 5 = 25 | 5 x 6 = 30 | 5 x 7 = 35 | 5 x 8 = 40 | 5 x 9 = 45 | 5 x 10 = 50 |
| 6 x 1 = 6 | 6 x 2 = 12 | 6 x 3 = 18 | 6 x 4 = 24 | 6 x 5 = 30 | 6 x 6 = 36 | 6 x 7 = 42 | 6 x 8 = 48 | 6 x 9 = 54 | 6 x 10 = 60 |
| 7 x 1 = 7 | 7 x 2 = 14 | 7 x 3 = 21 | 7 x 4 = 28 | 7 x 5 = 35 | 7 x 6 = 42 | 7 x 7 = 49 | 7 x 8 = 56 | 7 x 9 = 63 | 7 x 10 = 70 |
| 8 x 1 = 8 | 8 x 2 = 16 | 8 x 3 = 24 | 8 x 4 = 32 | 8 x 5 = 40 | 8 x 6 = 48 | 8 x 7 = 56 | 8 x 8 = 64 | 8 x 9 = 72 | 8 x 10 = 80 |
| 9 x 1 = 9 | 9 x 2 = 18 | 9 x 3 = 27 | 9 x 4 = 36 | 9 x 5 = 45 | 9 x 6 = 54 | 9 x 7 = 63 | 9 x 8 = 72 | 9 x 9 = 81 | 9 x 10 = 90 |
| 10 x 1 = 10 | 10 x 2 = 20 | 10 x 3 = 30 | 10 x 4 = 40 | 10 x 5 = 50 | 10 x 6 = 60 | 10 x 7 = 70 | 10 x 8 = 80 | 10 x 9 = 90 | 10x10 = 100 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 : 1 = 1 | 2 : 2 = 1 | 3 : 3 = 1 | 4 : 4 = 1 | 5 : 5 = 1 | 6 : 6 = 1 | 7 : 7 = 1 | 8 : 8 = 1 | 9 : 9 = 1 | 10 : 10 = 1 |
| 2 : 1 = 2 | 4 : 2 = 2 | 6 : 3 = 2 | 8 : 4 = 2 | 10 : 5 = 2 | 12 : 6 = 2 | 14 : 7 = 2 | 16 : 8 = 2 | 18 : 9 = 2 | 20 : 10 = 2 |
| 3 : 1 = 3 | 6 : 2 = 3 | 9 : 3 = 3 | 12 : 4 = 3 | 15 : 5 = 3 | 18 : 6 = 3 | 21 : 7 = 3 | 24 : 8 = 3 | 27 : 9 = 3 | 30 : 10 = 3 |
| 4 : 1 = 4 | 8 : 2 = 4 | 12 : 3 = 4 | 16 : 4 = 4 | 20 : 5 = 4 | 24 : 6 = 4 | 28 : 7 = 4 | 32 : 8 = 4 | 36 : 9 = 4 | 40 : 10 = 4 |
| 5 : 1 = 5 | 10 : 2 = 5 | 15 : 3 = 5 | 20 : 4 = 5 | 25 : 5 = 5 | 30 : 6 = 5 | 35 : 7 = 5 | 40 : 8 = 5 | 45 : 9 = 5 | 50 : 10 = 5 |
| 6 : 1 = 6 | 12 : 2 = 6 | 18 : 3 = 6 | 24 : 4 = 6 | 30 : 5 = 6 | 36 : 6 = 6 | 42 : 7 = 6 | 48 : 8 = 6 | 54 : 9 = 6 | 60 : 10 = 6 |
| 7 : 1 = 7 | 14 : 2 = 7 | 21 : 3 = 7 | 28 : 4 = 7 | 35 : 5 = 7 | 42 : 6 = 7 | 49 : 7 = 7 | 56 : 8 = 7 | 63 : 9 = 7 | 70 : 10 = 7 |
| 8 : 1 = 8 | 16 : 2 = 8 | 24 : 3 = 8 | 32 : 4 = 8 | 40 : 5 = 8 | 48 : 6 = 8 | 56 : 7 = 8 | 64 : 8 = 8 | 72 : 9 = 8 | 80 : 10 = 8 |
| 9 : 1 = 9 | 18 : 2 = 9 | 27 : 3 = 9 | 36 : 4 = 9 | 45 : 5 = 9 | 54 : 6 = 9 | 63 : 7 = 9 | 72 : 8 = 9 | 81 : 9 = 9 | 90 : 10 = 9 |
| 10 : 1 = 10 | 20 : 2 = 10 | 30 : 3 = 10 | 40 : 4 = 10 | 50 : 5 = 10 | 60 : 6 = 10 | 70 : 7 = 10 | 80 : 8 = 10 | 90 : 9 = 10 | 100 : 10=10 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **1** | 1 |  |  |  |  |  |  |  |  |  |  |  |
| **2** | 2 | 4 |  |  |  |  |  |  |  |  |  |  |
| **3** | 3 | 6 | 9 |  |  |  |  |  |  |  |  |  |
| **4** | 4 | 8 | 12 | 16 |  |  |  |  |  |  |  |  |
| **5** | 5 | 10 | 15 | 20 | 25 |  |  |  |  |  |  |  |
| **6** | 6 | 12 | 18 | 24 | 30 | 36 |  |  |  |  |  |  |
| **7** | 7 | 14 | 21 | 28 | 35 | 42 | 49 |  |  |  |  |  |
| **8** | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 |  |  |  |  |
| **9** | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |  |  |  |
| **10** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |  |
| **11** | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 110 | 121 |  |
| **12** | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

**Omrekenen van maateenheden en voorvoegsels**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| kilo | **hecto** | deca |  | deci | centi | milli | *Voorvoegsels* |

x 10

x 10

x 10

x 10

x 10

x 10

: 10

: 10

: 10

: 10

: 10

: 10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| kilometer km | **hectometer****hm** | decameterda | meter m | decimeter dm | centimeter cm | millimetermm | *Lengte* |

x 10

x 10

x 10

x 10

x 10

x 10

: 10

: 10

: 10

: 10

: 10

: 10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **km2** | **hm2****hectare** | dam2 | **m2****vierkante meter** | **dm2** | **cm2** | **mm2** | *Oppervlakte* |

x 100

x 100

x 100

x 100

x 100

x 100

: 100

: 100

: 100

: 100

: 100

: 100

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Zelf in te vullen* |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| km3 | hm3 | dam3 | **m3****kubieke meter****kuub** | dm3 | **cm3****cc** | **mm3** | *Inhoud* |

x 1000

x 1000

x 1000

x 1000

x 1000

x 1000

: 1000

: 1000

: 1000

: 1000

: 1000

: 1000

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| kiloliterkl | **hectoliter****hl** | decaliterdal | literl | deciliterdl | centilitercl | milliliterml | *Inhoud* |

x 10

x 10

x 10

x 10

x 10

x 10

: 10

: 10

: 10

: 10

: 10

: 10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| kilogramkg | hectogramhg | decagramdag | gramg | decigramdg | centigramcg | milligrammg | *Massa* |

x 10

x 10

x 10

x 10

x 10

x 10

: 10

: 10

: 10

: 10

: 10

: 10

1 ton = 1000 kg

1 ton = € 100 000

**Omrekening van km/uur naar m/sec**

|  |  |  |  |
| --- | --- | --- | --- |
| km/uur | m/uur | m/sec | *snelheid* |

x 1000

: 3600

: 1000

x 3600

**Breuken en decimale getallen**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Breuk** | **Naam** | **Met 10 in de noemer** | **Met 100 in de noemer** | **Decimaal getal** |
| $$\frac{1}{1}$$ |  één | $$\frac{10}{10}$$ | $$\frac{100}{100}$$ | 1 (of 1,00) |
| $$\frac{1}{2}$$ |  één tweede helft | $$\frac{5}{10}$$ | $$\frac{50}{100}$$ | 0,5 (of 0,50) |
| $$\frac{1}{4}$$ |  één vierde kwart |  | $$\frac{25}{100}$$ | 0,25 |
| $$\frac{1}{5}$$ |  één vijfde | $$\frac{2}{10}$$ | $$\frac{20}{100}$$ | 0,2 (of 0,20) |
| $$\frac{1}{8}$$ |  één achtste |  |  | 0,125 |
| $$\frac{1}{10}$$ |  één tiende | $$\frac{1}{10}$$ | $$\frac{10}{100}$$ | 0,1 (of 0,10) |
| $$\frac{1}{100}$$ |  één honderdste |  | $$\frac{1}{100}$$ | 0,01 |

**Breuken, verhoudingen en procenten**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Breuk** | **Naam** | **Verhouding** | **Naam** | **Percentage** |
| $$\frac{1}{1}$$ |  het geheel | 1 : 1 | één op één | 100% |
| $$\frac{1}{2}$$ |  een tweede deel van de helft van | 1 : 2 | één op de tweeelke tweedeéén van de twee | 50% |
| $$\frac{1}{4}$$ |  een vierde deel van een kwart van | 1 : 4 | één op de vierelke vierdeéén van de vier | 25% |
| $$\frac{1}{5}$$ |   een vijfde deel van | 1 : 5 | één op de vijfelke vijfdeéén van de vijf | 20% |
| $$\frac{1}{8}$$ |  een achtste deel van | 1 : 8 | één op de achtelke achtsteéén van de acht | 12,5% |
| $$\frac{1}{10}$$ |  een tiende deel van | 1 : 10 | één op de tienelke tiendeéén van de tien | 10% |
| $$\frac{1}{100}$$ |   een honderdste deel van | 1 : 100 | één op de honderdelke honderdsteéén van de honderd | 1% |

**Rekenmodellen**

**Procentberekeningen**

Hoeveel is 35% van 60?

60

100%

10%

5%

30%

35%

6

3

18

21

|  |  |  |  |
| --- | --- | --- | --- |
| Aantal | 60 | 0,6 | 21 |
| Procenten | 100 | 1 | 35 |

: 100

x 35

: 100

x 35

|  |  |  |  |
| --- | --- | --- | --- |
| Aantal | 60 | 3 | 21 |
| Procenten | 100 | 5 | 35 |

: 20

x 7

: 20

x 7

**Verhoudingsproblemen**

6 broodjes kosten € 16,50. Hoeveel kosten 4 broodjes?

6 broodjes

4 broodjes

2 broodjes

€ 16,50

€ 5,50

€ 11,00

6 broodjes

€ 16,50

€ 5,50

€ 11,00

|  |  |  |  |
| --- | --- | --- | --- |
| Aantal broodjes | 6 | 2 | 4 |
| Prijs in € | 16,50 | 5,50 | 11,00 |

: 3

x 2

: 3

x 2

6 broodjes kosten € 16,50. Hoeveel kosten 5 broodjes?

6 broodjes

5 broodjes

1 broodje

€ 16,50

€ 2,75

€ 13,75

6 broodjes

€ 16,50

€ 2,75

€ 13,75

|  |  |  |  |
| --- | --- | --- | --- |
| Aantal broodjes | 6 | 1 | 5 |
| Prijs in € | 16,50 | 2,75 | 13,75 |

: 6

x 5

: 6

x 5