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|  | III Prozentrechnung – Zinsrechnung, Check-out |  |  |
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Check-out Kapitel III

Schätze dich mithilfe der Checkliste ein.

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|  | Checkliste |  |  |  | Lerntipps | zum Nacharbeiten |
| 1. | Ich kann Anteile mithilfe von  %-Angaben vergleichen. | 🞎 | 🞎 | 🞎 | Beispiel 1 auf Seite 85 | Seite 112: A2 |
| 2. | Ich kann die Begriffe Prozentsatz, Prozentwert und Grundwert bei einer entsprechenden Aufgabe richtig zuordnen. | 🞎 | 🞎 | 🞎 | Beispiel 2 auf Seite 85 | Seite 112: A1 und 3  je a) bis d) sowie A6 und A7 |
| 3. | Ich kann die drei Größen der Prozentrechnung mithilfe des Dreisatzes und mithilfe der Formel berechnen. | 🞎 | 🞎 | 🞎 | Beispiele 1 und 2 auf Seite 90 sowie  Beispiele 1 und 2 auf Seite 95 | Seite 112: A4 |
| 4. | Ich kann Anwendungsaufgaben der Prozentrechnung lösen. | 🞎 | 🞎 | 🞎 | Beispiel 1 auf Seite 100 | Seite 113: A13 und  Seite 114: A18 |
| 5. | Ich kann die drei Größen der Zins- und Zinseszinsrechnung berechnen. | 🞎 | 🞎 | 🞎 | Beispiele 1 bis 3 auf  Seite 105 und Beispiel 1 auf Seite 109 | Seite 113: A8 und A9  Seite 110: A5  Seite 113: A11 |
| 6. | Ich kann Anwendungsaufgaben zur Zins- und Zinseszinsrechnung lösen. | 🞎 | 🞎 | 🞎 | Beispiele 1 bis 3 auf  Seite 105 und Beispiel 1 auf Seite 109 | Seite 113: A10, A12 und A14 und  Seite 117: Runde 1 A3 |

Überprüfe deine Einschätzung.



Zu 1. **Anteile mithilfe von %-Angaben vergleichen**

Berechne die jeweiligen Anteile in %. Ordne die Anteile der Größe nach.

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| a) |  | b) | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | | c) | 0,58 |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |



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| Zu 2. **Begriffe Prozentsatz, Prozentwert und Grundwert richtig zuordnen**  Gib die Zahlen an, die den drei Fachbegriffen Prozentsatz, Prozentwert und Grundwert zuzuordnen sind.  a) 30 % von 1500 kg sind 450 kg.  b) Der Preis eines Autos wurde von bisher 35 000 € um 5 % auf 33 250 € gesenkt. |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

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|  | III Prozentrechnung – Zinsrechnung, Check-out |  |  |
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Zu 3. **Größen der Prozentrechnung mithilfe des Dreisatzes und der Formel berechnen**

Löse einmal mithilfe des Dreisatzes und einmal mithilfe einer Formel.

a) Bestimme, wie viel Prozent 275 von 625 sind.

b) 12 % entsprechen 240 €. Ermittle, wie viel Euro dem Grundwert entsprechen.

c) Es sollen 15 % von 3000 kg berechnet werden.

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Zu 4. **Anwendungsaufgaben der Prozentrechnung lösen**

a) Die Erde ist etwa 150 Millionen km von der Sonne entfernt. Der Abstand des Planeten Jupiter beträgt etwa 520 % des Erdabstands. Berechne, wie weit der Jupiter von der Sonne entfernt ist.

b) Vor Schuljahresende soll in einem Schreibwarengeschäft das Lager geleert werden. Daher werden viele Artikel mit Preisnachlass verkauft. Auf ein Heft wird 25 % Rabatt gegeben. Bestimme, wie teuer das Heft ist, wenn der alte Preis 0,72 € betrug.

c) Ein Bauteil kostet mit 19 % Mehrwertsteuer 38,08 €. Ermittle, wie viel es ohne Mehrwertsteuer kostet.

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|  | III Prozentrechnung – Zinsrechnung, Check-out |  |  |
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Zu 5. **Größen der Zins- und Zinseszinsrechnung berechnen**

Berechne die fehlenden Angaben. Schreibe deine Rechnungen dabei ausführlich auf.

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|  | a) | b) | c) | d) | e) | f) |
| Kapital (in €) | 12 000 |  | 5 000 | 15 000 | 3000 | 10 000 |
| Zinssatz | 2,3 % | 2 % | 1,5 % |  | 1,6 % | 2,01 % |
| Laufzeit | 1 Jahr | 360 Tage | 72 Tage | 44 Tage | 10 Jahre |  |
| Zinsen (in €) |  | 220 |  | 165 |  | 2000 |

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Zu 6. **Anwendungsaufgaben der Zins- und Zinseszinsrechnung lösen**

a) Am 1. Januar hat Sylvia 120 € auf ihrem Sparkonto. Am 1. April zahlt sie 100 € ein und am 1. September 125 €. Bestimme, wie viel Euro sie bei einem Zinssatz von 3 % pro Jahr am Jahresende abheben kann.

b) Armin bekommt zur Konfirmation 800 €, die er für die Bezahlung seines Führerscheins sparen möchte. Er legt das Geld bei der Bank für 4 Jahre zu einem Zinssatz von 1,3 % an. Berechne, wie viel Geld Armin nach 4 Jahren auf dem Konto hat.

c) Jana wurde zu ihrem 10. Geburtstag ein Konto mit 200 € Guthaben eingerichtet, das mit 1,7 % verzinst wird. Ermittle, wie lange es dauert bis 360 € auf ihrem Konto sind.

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|  | III Prozentrechnung – Zinsrechnung, Check-out | Lösungen |  |
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Check-out Kapitel III, S 73 – S 75

1 a)

b) Anteil der dunklen Felder:

c)

2 a) Prozentsatz: 30 %; Grundwert: 1500 kg und Prozentwert: 450 kg.

b) Prozentsatz: 5 %; Grundwert: 35 000 € und Prozentwert:

3

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| a) | |  |  |  |  | | --- | --- | --- | --- | |  | 625 | 100 % |  | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 25 | 4 % | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 275 | 44 % | |  |  | | b) | |  |  |  |  | | --- | --- | --- | --- | |  | 12 % | 240 € |  | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 4 % | 80 € | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 100 % | 2000 € | |  |  | |

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| c) | |  |  |  |  | | --- | --- | --- | --- | |  | 100 % | 3000 kg |  | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 5 % | 150 kg | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 15 % | 450 kg | |  |  | |  |  |

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| a) | |  |  |  |  | | --- | --- | --- | --- | |  | 100 % | 150 Mio. km |  | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 20 % | 30 Mio. km | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 520 % | 780 Mio. km | |  |  | | b) | |  |  |  |  | | --- | --- | --- | --- | |  | 100 % | 0,72 € |  | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 25 % | 0,18 € | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 75 % | 0,54 € | |  |  | |

Der Jupiter ist 780 Mio. km von der Erde entfernt. Das Heft kostet nach dem Rabatt noch 0,54 €.

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| c) | |  |  |  |  | | --- | --- | --- | --- | |  | 119 % | 38,08 € |  | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 1 % | 0,32 € | | **Pfeil_unten_klein rechts** | **Pfeil_unten_klein** | | 100 % | 32 € | |  |  | |  |  |

Das Bauteil kostet ohne Mehrwertsteuer 32 €.

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|  | III Prozentrechnung – Zinsrechnung, Check-out | Lösungen |  |
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|  | a) | b) | c) | d) | e) | f) |
| Kapital (in €) | 12 000 | **11** **000** | 5000 | 15 000 | 3000 | 10 000 |
| Zinssatz | 2,3 % | 2 % | 1,5 % | **9** **%** | 1,6 % | 2,1 % |
| Laufzeit | 1 Jahr | 360 Tage | 72 Tage | 44 Tage | 10 Jahre | **9 Jahre** |
| Zinsen (in €) | **276** | 220 | **15** | 165 | **516,08** | 2000 |

a)

b)

c)

d)

(Alternativ kann mit dem Dreisatz gerechnet werden.)

e) ;

f) Man will wissen, nach welcher Zeit das Kapital beträgt. Probieren ergibt:

Für erhält man: .

Für erhält man: . Also Jahre.

6 a) Zinsen Januar bis März:

Zinsen April bis August:

Zinsen September bis Dezember:

Zinsen für das ganze Jahr:

Am Ende des Jahres kann Sylvia 352,10 € abheben.

(Alternativ kann mit dem Dreisatz gerechnet werden.)

b) ; Armin hat nach 4 Jahren 842,42 € auf seinem Konto.

c) Für erhält man .

Für erhält man .

Nach 35 Jahren, also wenn Jana 45 Jahre alt ist, sind mehr als 360 € auf dem Konto.