

POLYNOMDIVISION

$$(-4x^3 + 10x^2 + 194x - 200) : (x - 1)$$

Wie lässt sich so etwas berechnen ??

Hinweis: Bewege Dich mit den Pfeiltasten durch die Präsentation



POLYNOMDIVISION

1. Schritt: Teilen (Division)

$$(-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2$$

The diagram illustrates the first step of polynomial division. The dividend, $(-4x^3 + 10x^2 + 194x - 200)$, is circled in red. The divisor, $(x - 1)$, is also circled in red. A red arrow points from the first term of the dividend, $-4x^3$, to the first term of the divisor, x . Another red arrow points from the divisor, $(x - 1)$, to the result, $-4x^2$.

POLYNOMDIVISION

2. Schritt: Rückmultiplikation

$$(-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2$$

The diagram shows the polynomial division process. The dividend is $(-4x^3 + 10x^2 + 194x - 200)$. The divisor is $(x - 1)$. The quotient is $-4x^2$. A red oval encloses the first two terms of the dividend: $(-4x^3 + 10x^2)$. A red arrow points from this oval to the divisor $(x - 1)$. Another red oval encloses the divisor $(x - 1)$. A red asterisk (*) is placed above this oval, indicating multiplication. A red arrow points from the divisor oval to the quotient term $-4x^2$.

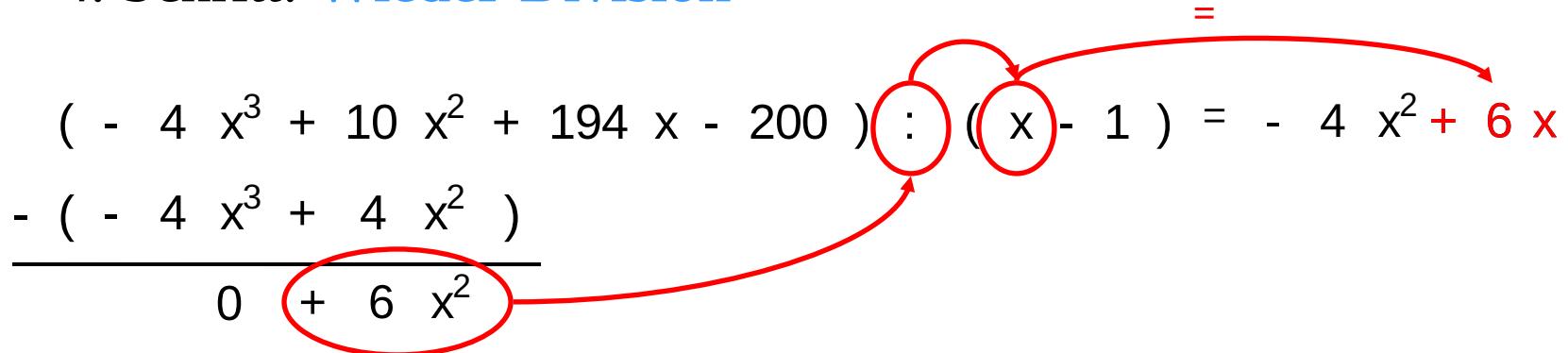
POLYNOMDIVISION

3. Schritt: Subtraktion

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 \end{array}$$

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4. Schritt: Wieder Division

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 + 6x \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 \end{array}$$


POLYNOMDIVISION

5. Schritt: Wieder Rückmultiplikation

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 + 6x \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 - 6x \end{array}$$

A red curved arrow labeled with an asterisk (*) points from the term $(x - 1)$ in the divisor to the term $-6x$ in the remainder. Another red arrow points from the term $-6x$ to the term $6x^2$ in the quotient.

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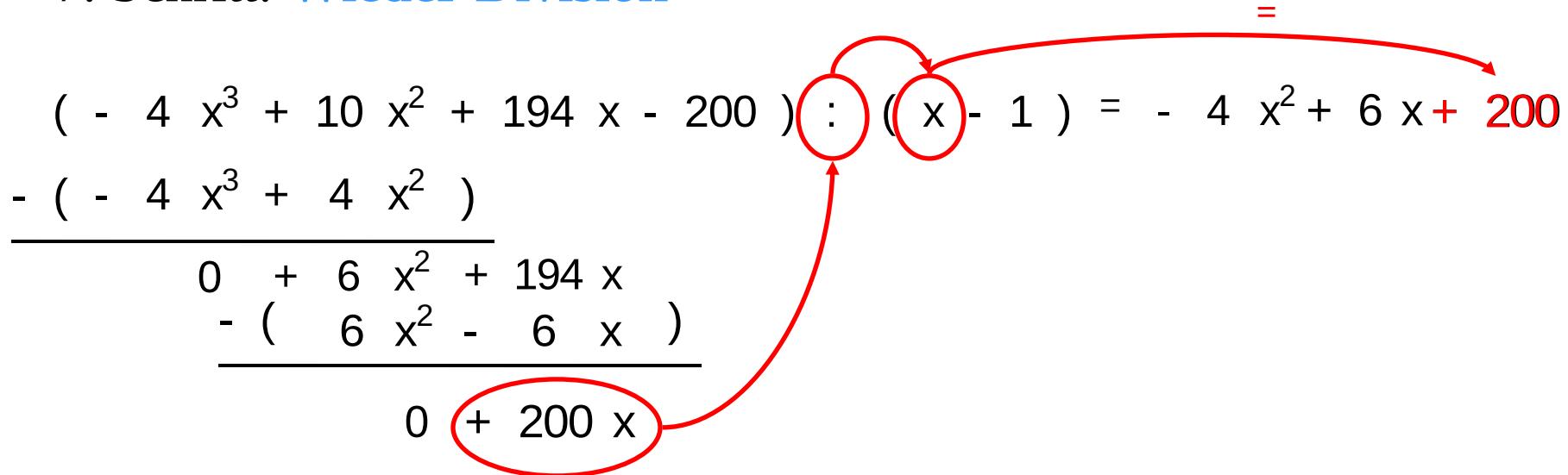
6. Schritt: Wieder Subtraktion

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 + 6x \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 + 194x \\ - (-6x^2 + 6x) \\ \hline 0 + 200x \end{array}$$

A red arrow points from the term $194x$ in the dividend to the term $6x$ in the divisor, indicating the subtraction step.

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7. Schritt: Wieder Division

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 + 6x + 200 \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 + 194x \\ - (6x^2 - 6x) \\ \hline 0 + 200x \end{array}$$


POLYNOMDIVISION

8. Schritt: Wieder Rückmultiplikation

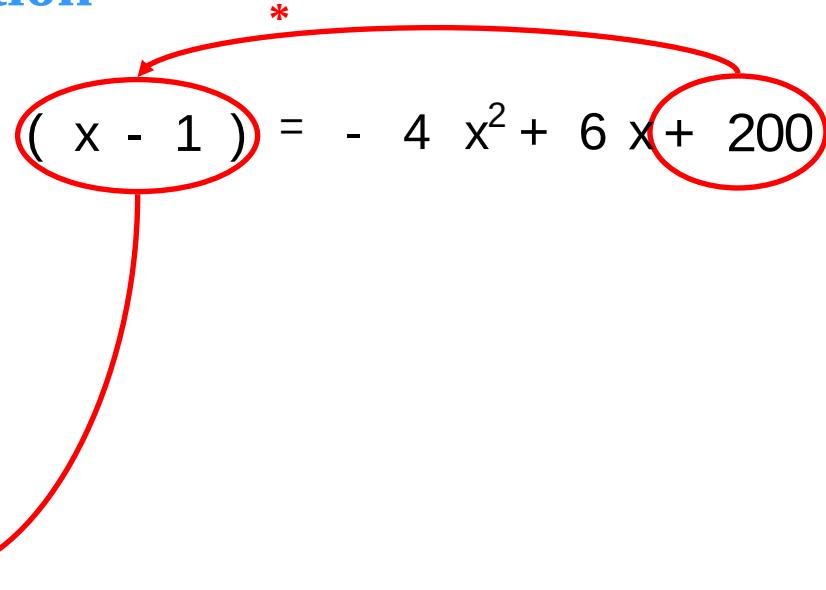
$$(-4x^3 + 10x^2 + 194x - 200) : (x - 1)$$

$$- (-4x^3 + 4x^2)$$

$$\begin{array}{r} 0 + 6x^2 + 194x \\ - (6x^2 - 6x) \\ \hline \end{array}$$

$$0 + 200x$$

$$200x - 200$$



POLYNOMDIVISION

9. Schritt: Wieder Subtraktion

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 + 6x + 200 \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 + 194x \\ - (6x^2 - 6x) \\ \hline 0 + 200x - 200 \\ - (200x - 200) \\ \hline 0 \quad 0 \end{array}$$

A red arrow points from the term $- (6x^2 - 6x)$ down to the term $- (200x - 200)$.

Hurra!
Geschaft!



Hinweis: In den Online-Übungen, die du gleich machst, wird verlangt, dass beim "Subtrahieren" alle Terme von oben kopiert werden.

Im Beispiel ist in der grünen Box zusätzlich zu $194x$ auch

- 200 abzuschreiben.

$$\begin{array}{r} (-4x^3 + 10x^2 + 194x - 200) : (x - 1) = -4x^2 + 6x + 200 \\ - (-4x^3 + 4x^2) \\ \hline 0 + 6x^2 + 194x - 200 \\ - (6x^2 - 6x) \\ \hline 0 + 200x - 200 \\ - (200x - 200) \\ \hline 0 \quad 0 \end{array}$$

