

1 Review of Mathematics

operations with fractions:

Primarily multiplications or divisions and then + or -.

when simplifying a fraction, the greatest common divisor of the numerator and denominator is used.

always simplify the fraction

express a fraction as:

when a decimal is a pure periodic decimal eg $n = 235.2$ -> periodic part: numerator: 2, denominator: 9 (one digit after decimal point)

when a decimal is a mixed periodic decimal eg, 1.372 -> periodic part: numerator: 372, denominator: 999 (three digits after decimal point)

potencies and roots:

Properties of powers:

1. $a^0 = 1$, 2. $a^b \cdot a^c = a^{b+c}$, 3. $\frac{a^b}{a^c} = a^{b-c}$, 4. $(a^b)^c = a^{b \cdot c}$, 5. $a^{-b} = \frac{1}{a^b}$, 6. $a^b \cdot a^{-b} = 1$, 7. $(a \cdot b)^c = a^c \cdot b^c$, 8. $\frac{a^b}{b^c} = \frac{a^b}{b^c}$, 9. $(\frac{a}{b})^c = \frac{a^c}{b^c}$

the wire problem:

The 1st part of the wire is 90 m. In 2 parts, we divide it into 3 € the meter, 1 € the sixth part to 4 € the meter and the rest is 2 € the meter. How many meters of wire did we buy?

1st stage: 2 parts of 90 = 60, then 30

2nd stage: 1/6 of 30 = 5m. then 25

1st stage: 60 euros game $3 \times 20 = 180$ €

2nd stage: 5 euros game $4 \times 5 = 20$ €

25m (tax) 2 € game match $25 \times 2 = 50$ €

solution:

$250 - 180 - 50 = 20$ € price cost: 90 m (tax) $\times 2$ euros match $20 = 180$ €

division of polynomials:

long division: Terms of the dividend, divide by the greater degree of the divisor, then divide the result by the divisor.

Terms of the dividend are multiplied by the divisor, then the result is subtracted from the dividend. The remainder is the result of the division.

scientific notation:

"Consist of expressing a number in terms of a significant figure (other than 0) and a power of 10"

intervals:

if you notice the interval is closed, the endpoints are included in the interval

if you notice the interval is open, the endpoints are not included in the interval

important identities:

$$(a + b)^2 = a^2 + 2 \cdot a \cdot b + b^2$$

$$(a - b)^2 = a^2 - 2 \cdot a \cdot b + b^2$$

$$(ab)^2 = a^2 \cdot b^2$$

$$(-ab)^2 = a^2 \cdot b^2$$

$$(-a + b) \cdot (a + b) = b^2 - a^2$$

the binomial formula:

-b + - root SquarePants kuadradada to -4 db split xaxc notif 2 x to