

Algebra.

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|---|--|
| 1) $(94 + 179) + 21$; | 9) $2 \cdot 5 \cdot 2 \cdot 5 \cdot 7 \cdot 2 \cdot 5$; |
| 2) $287 + (13 + 598)$; | 10) $4 \cdot 19 \cdot 25$; |
| 3) $(356 + 849) + (51 + 644)$; | 11) $2 \cdot 4 \cdot 25 \cdot 5 \cdot 3$; |
| 4) $329 + 994 + 71 + 6$; | 12) $20 \cdot 9 \cdot 500$; |
| 5) $2005 + 768 + 32 + 995 + 19$; | 13) $7 \cdot 15 + 7 \cdot 85$; |
| 6) $51 + 52 + 53 + 54 + 55 + 56 + 57 + 58 + 59$; | 14) $82 \cdot 4 + 18 \cdot 4$; |
| 7) $99 + 99 + 99 + 99 + 99 + 99 + 99 + 99 + 8$; | 15) $36 \cdot 97 + 36 \cdot 3$; |
| 8) $999 + 999 + 999 + 999 + 999 + 7$; | 16) $24 \cdot 128 + 76 \cdot 128$. |

Compute:

- | | |
|---|--|
| 1) $\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5}$; | 4) $1\frac{1}{2} \cdot 1\frac{1}{3} \cdot 1\frac{1}{4} \cdot 1\frac{1}{5}$; |
| 2) $\frac{6}{7} \cdot \frac{7}{8} \cdot \frac{8}{9} \cdot \frac{9}{10} \cdot \frac{10}{11}$; | 5) $\left(1 + \frac{1}{4}\right) \cdot \left(1 + \frac{1}{5}\right) \cdot \left(1 + \frac{1}{6}\right) \cdot \left(1 + \frac{1}{7}\right) \cdot \left(1 + \frac{1}{8}\right)$; |
| 3) $\frac{1}{2} \cdot \frac{2}{3} \cdot \dots \cdot \frac{23}{24} \cdot \frac{24}{25}$; | 6) $\left(1 - \frac{1}{2}\right) \cdot \left(1 - \frac{1}{3}\right) \cdot \left(1 - \frac{1}{4}\right) \cdot \dots \cdot \left(1 - \frac{1}{99}\right) \cdot \left(1 - \frac{1}{100}\right)$. |

1. Complex fractions.

Complex fractions are formed by two fractional expressions, one on the top and the other one on the bottom, for example:

$$\frac{\frac{1}{2} + \frac{1}{3}}{\frac{2}{9} - \frac{1}{5}}$$

We know that fraction bar is a just another way to write the division sign, so the above expression is equivalent to

$$\frac{\frac{1}{2} + \frac{1}{3}}{\frac{2}{9} - \frac{1}{5}} = \left(\frac{1}{2} + \frac{1}{3}\right) \div \left(\frac{2}{9} - \frac{1}{5}\right)$$

And it is easy to simplify a complex fraction:

$$\frac{\frac{1}{2} + \frac{1}{3}}{\frac{2}{9} - \frac{1}{5}} = \left(\frac{1}{2} + \frac{1}{3}\right) \div \left(\frac{2}{9} - \frac{1}{5}\right) = \frac{\frac{3}{6} + \frac{2}{6}}{\frac{8}{12} - \frac{3}{12}} = \frac{\frac{5}{6}}{\frac{5}{12}} = \frac{5}{6} \div \frac{5}{12} = \frac{5}{6} \cdot \frac{12}{5} = \frac{5}{1} \cdot \frac{2}{1} = \frac{10}{1}$$

Exercises.

1. Compute:

$$\frac{6}{1 - \frac{1}{3}} =$$

$$\frac{1 - \frac{1}{6}}{2 + \frac{1}{6}} =$$

$$\frac{\frac{1}{2} + \frac{3}{4}}{\frac{1}{2}} =$$

$$\frac{\frac{7}{10} + \frac{1}{3}}{\frac{7}{10} + \frac{1}{2}} =$$

$$\frac{2 - \frac{\frac{1}{2} - \frac{1}{4}}{2}}{2 + \frac{\frac{1}{2} - \frac{1}{4}}{2}} =$$

2. Write all value for n (n is a natural number) for which the following fractions will be improper fractions:

$$\frac{10}{3+n}; \quad \frac{19}{2n}; \quad \frac{16}{20-n}; \quad \frac{23}{3n}$$

3. Solve the equations:

$$\frac{9+a}{9} = 23$$

$$\frac{504}{b-18} = 72$$

4. For the prime numbers greater than 3
- Is the number preceding (following) a prime number a prime number or a composite number?
 - Is the number preceding (following) a composite number a prime number or a compound number?

Coordinates.

Draw a triangle ABC, coordinates of vertices are A(0,4), B(8,0) and C(16,8). Measure the angles with protractor. Find the midpoints of each side, connect them and construct a triangle MNK. Measure the angles of the triangle MNK.

