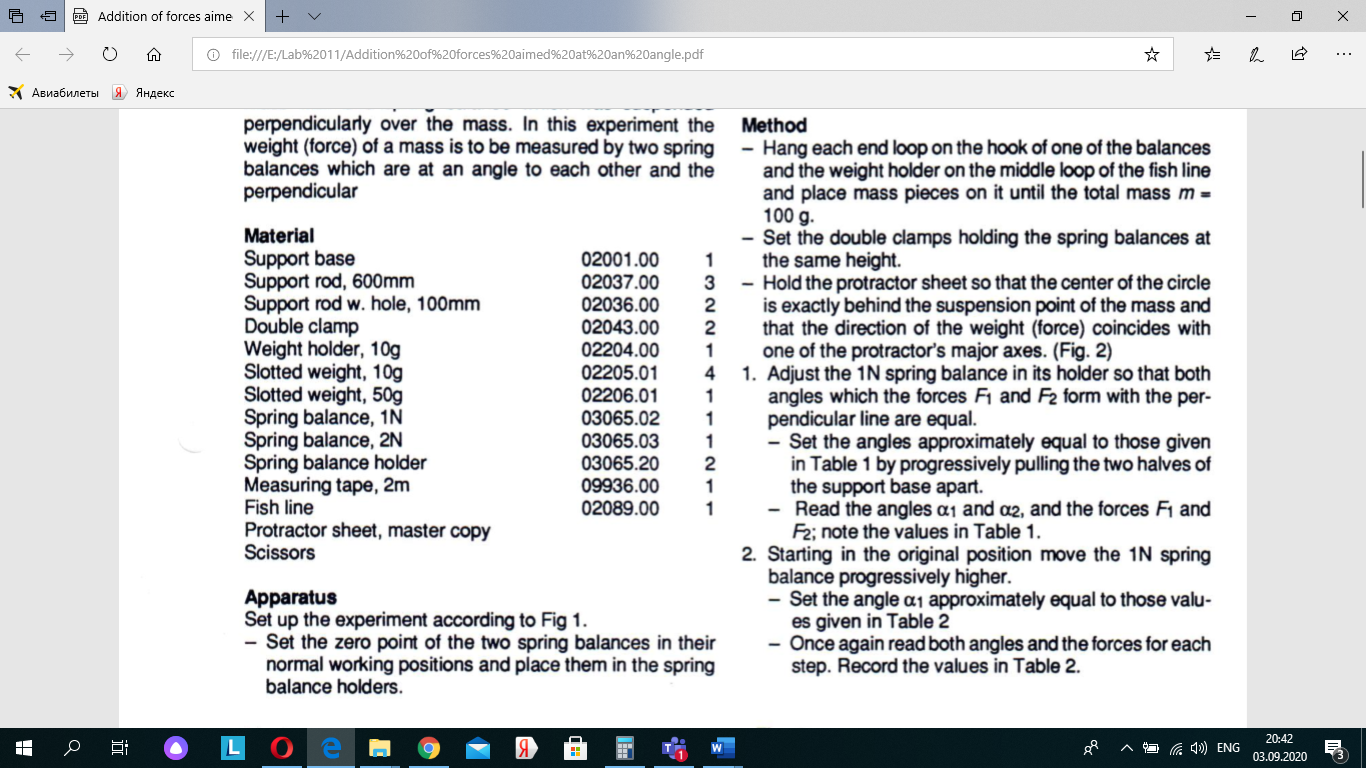
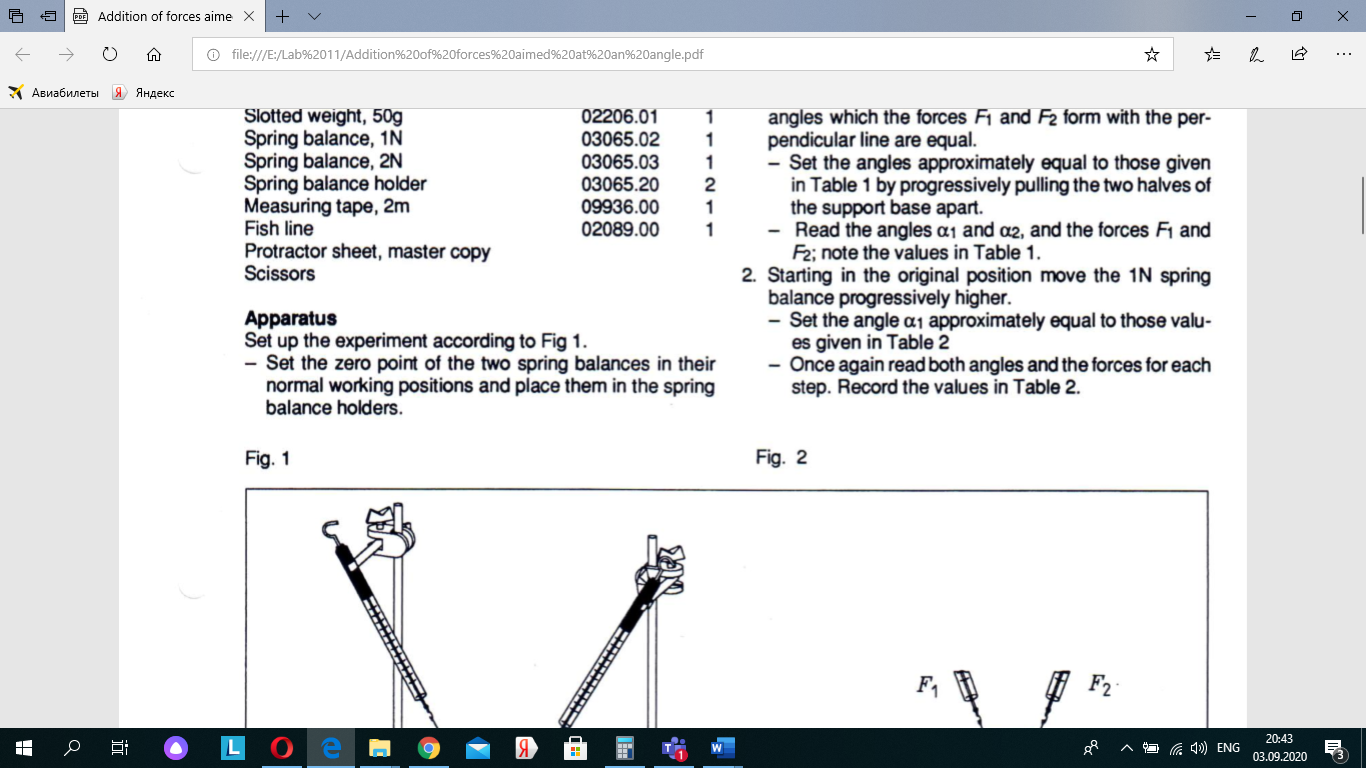
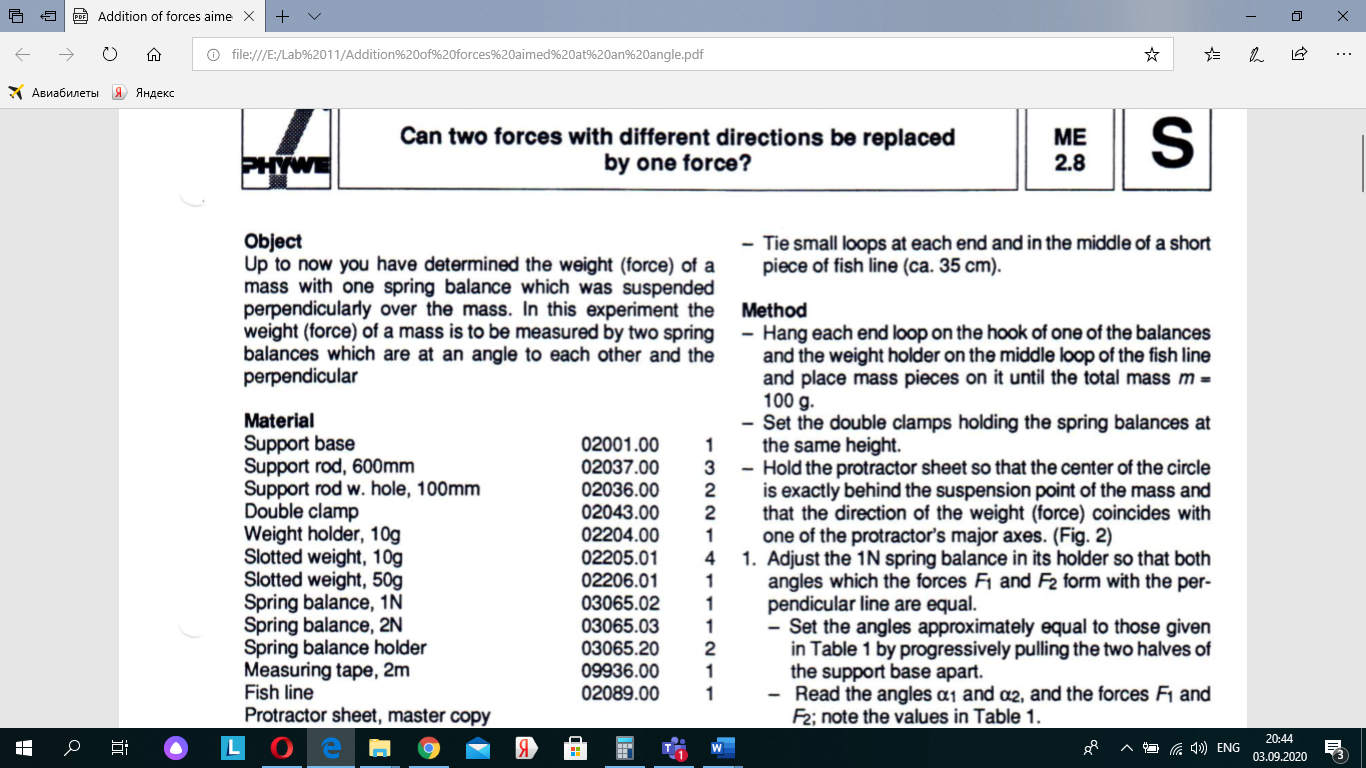
**Addition of forces aimed at an angle**

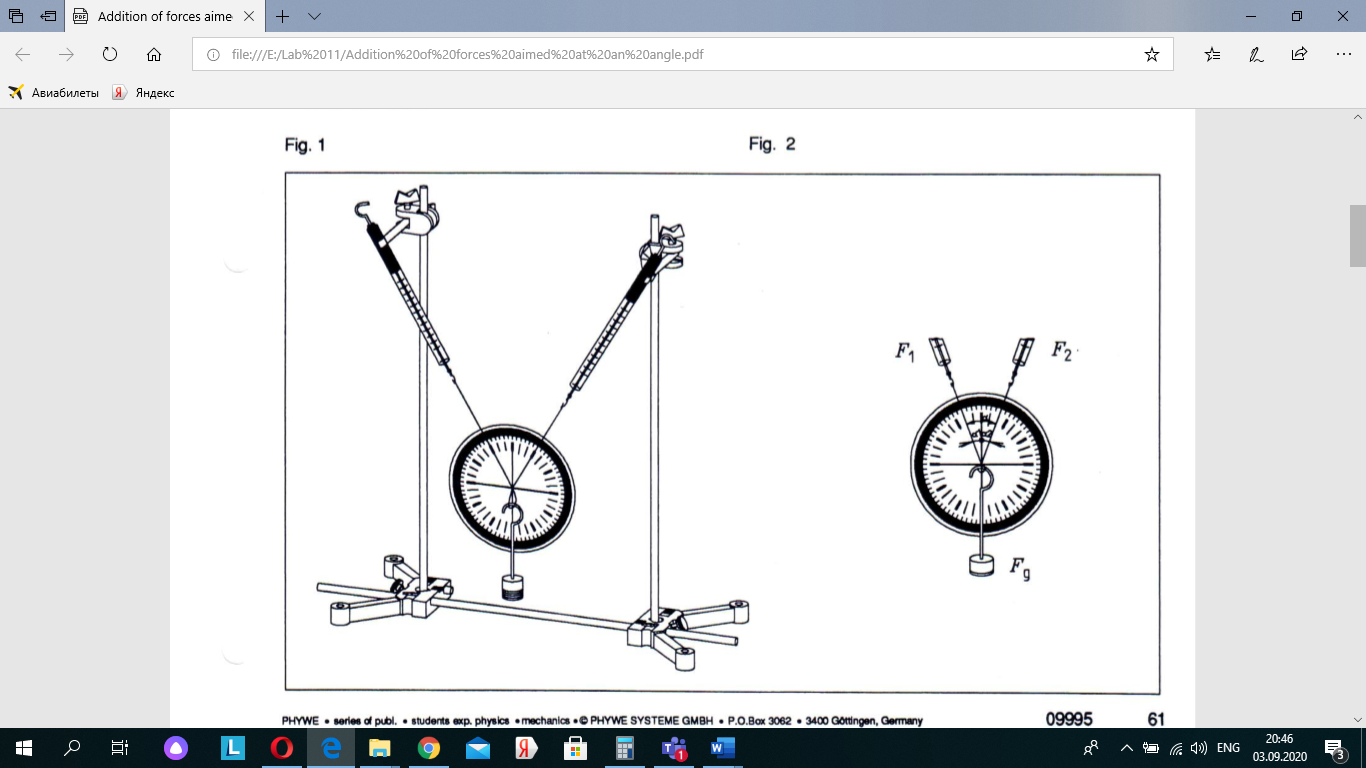
**Object:**

Add and subtract parallel and non-parallel vectors;









**Results**

M = 100 g; Fg = 1 N

Table 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| α1/ ° | α2/ ° | α/ ° | F1 /N | F2 /N | Fr /N |
| 20 | 20 |  | 0.55 | 0.50 |  |
| 30 | 30 |  | 0.59 | 0.58 |  |
| 40 | 40 |  | 0.62 | 0.63 |  |
| 50 | 50 |  | 0.74 | 0.76 |  |

Table 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| α1/ ° | α2/ ° | α/ ° | F1 /N | F2 /N | Fr /N |
| 40 | 25 |  | 0.46 | 0.70 |  |
| 55 | 20 |  | 0.33 | 0.85 |  |
| 70 | 18 |  | 0.25 | 0.94 |  |
| 90 | 15 |  | 0.24 | 1.04 |  |
| 115 | 18 |  | 0.40 | 1.22 |  |

**Evaluation**

1. Calculate α from α1 and α2 and complete the two tables.
2. Using the measured values in the tables, draw 2 force parallelograms each on a separate sheet of paper. Use a specific scale for the force,

e.g. 1 N = 10 cm

1. Determine the resultant force Fr from the diagrams graphically and record the values in the tables.
2. Compare the graphically determined values for the resultant force Fr with the weight (force) Fg. What do you observe?

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Formulate the result of the experiment:

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………….

1. Describe how you determined the resultant Fr:

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**Supplementary problem**

* Calculate the resultant force Frb for several measurements using

and compare the values obtained with the weight (force) Fg and the values Fr for the resultant force which were determined from the diagrams:

= ……………………………….