

Math 4a. Homework 15.

1. There are three people (Alex, Brook and Robert), one of whom is a knight, one is a knave, and one is a spy.



The knight always tells the truth, the knave always lies, and the spy can either lie or tell the truth.

Alex says: "Robert is a knave."

Brook says: "Alex is a knight."

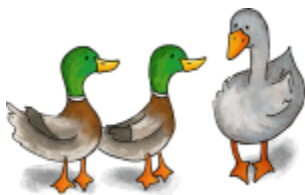
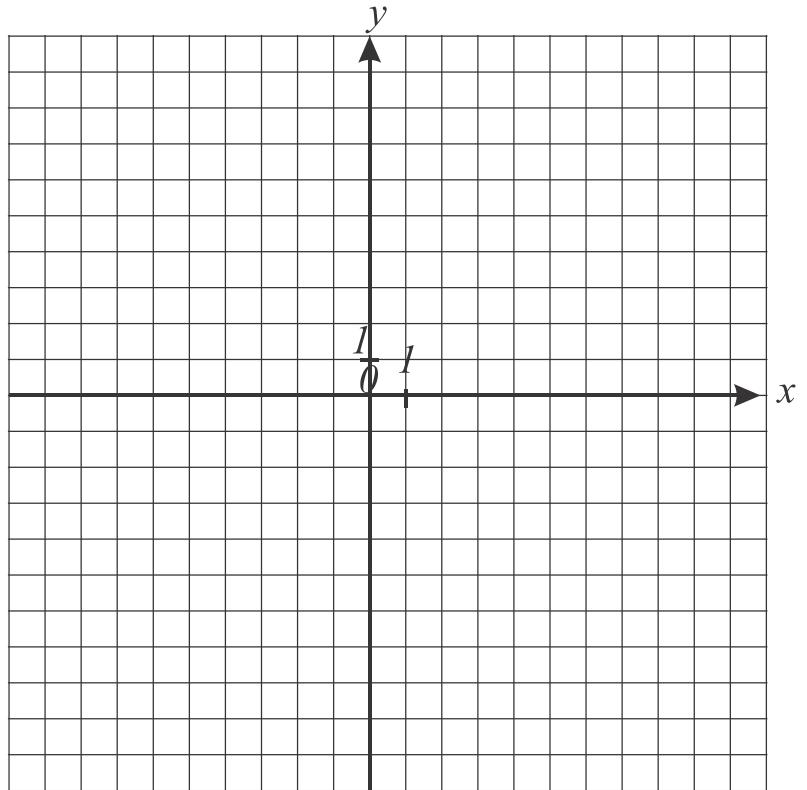
Robert says: "I am the spy."



Who is the knight, who is the knave, and who is the spy?

2. ABCD is a rectangle. Find the coordinates of point D and draw the rectangle.

- a. $A(-9; 2), B(-9; 4), C(-3; 4)$
- b. $A(0; 6), B(0; -2), C(5; -2)$
- c. $A(9; 0), B(9; -5), C(2; -5)$
- d. $A(-6; 0), B(-6; -7), C(0; -7)$



3. 4 little ducklings and 5 little geese weight 4 kg and 100 g. 5 little ducklings and 4 little geese weight 4 kg. How much does one little goose weight?

4. Compute:

$$a) \frac{2 - \frac{1}{\frac{1}{2} + \frac{1}{4}}}{2 + \frac{1}{\frac{1}{2} + \frac{1}{4}}};$$

$$c) 1 - \frac{1}{1 + \frac{1}{2}};$$

$$e) 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{2}}};$$

$$b) \frac{4 + \frac{1}{\frac{1}{2} - \frac{1}{3}}}{4 - \frac{1}{\frac{1}{2} - \frac{1}{3}}};$$

$$d) 2 + \frac{2}{1 - \frac{2}{3}};$$

$$f) 3 - \frac{3}{3 - \frac{1}{1 - \frac{1}{3}}}.$$

5. Fill empty spaces with missing digits to get the right expressions:

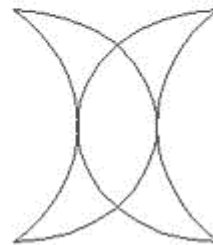
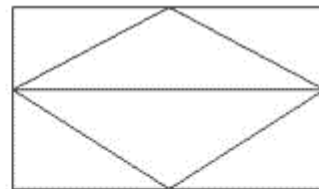
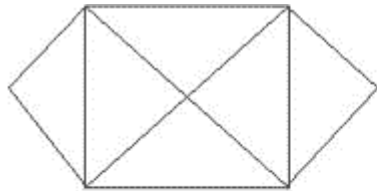
$$a) \begin{array}{r} \square 7 . \square 6 \square \\ + 5 . 9 0 0 \\ \hline 3 \square . 4 \square 4 \end{array}$$

$$b) \begin{array}{r} \square 4 . 7 \square 1 \\ - 1 \square . 2 8 \square \\ \hline 2 1 . \square 7 1 \end{array}$$

$$c) \begin{array}{r} 3 . \square 5 \square 8 2 \\ + \square . 2 \square 7 4 \square \\ \hline 4 . 0 2 9 \square 2 \end{array}$$

$$d) \begin{array}{r} 1 \square . 2 \square 3 0 \square \\ - 8 . 0 5 \square 2 7 \\ \hline 6 . \square 2 5 \square 3 \end{array}$$

6. Can you trace the following figures without lifting a pencil and without retracing any edge?



7. Compare:

$0.756 \quad 0.76;$

$0.12345 \quad 0.0102030405;$

$3.4208 \quad 3.4028;$

$0.32032032 \quad 0.321;$

$4.0986 \quad 4.1;$

$2.57043566 \quad 2.570345666666;$

$12.576 \quad 9.99999;$

$7.77777777 \quad 7.777777777;$

8. Compute:

a. $42.18 \cdot 10 =$

b. $0.0762 \cdot 100 =$

c. $8.3 \cdot 100 =$

d. $0.0056 \cdot 1000 =$

e. $72.13 \div 10 =$

f. $0.04 \div 10 =$

g. $0.24 \div 100 =$

h. $12.18 \div 1000 =$