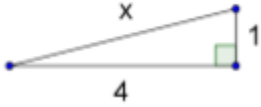


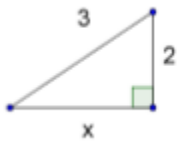
1. Write the type of number (integer, rational number, irrational number, imaginary number) you can use to count: (separate answer for each please)

- a) People b) grains of salt c) square root of -32 \
- d) hypotenuse of the right triangle whose legs are: $a = 2$, $b = 3$ e) gallons of water

2. Find the missing length. Write the length as an exact number.



3. Find the missing length. Write the length as an exact number.



4. Write the following numbers in order from smallest to largest (from left to right):

$$\frac{7}{4}, \frac{6}{3}, \frac{5}{2}, \sqrt{2}, \sqrt{3}, 8$$

5. Why do you think that natural numbers were the first numbers to be invented?

6. What type of numbers came after natural numbers? Why do you think so?

7. Write the following rational numbers in fraction form:

- a) 0.125 b) 2.125 c) 5.125

8) Simply the following expressions

a) $(3 + 2i) - (4 - 3i)$ b) $7(2 + 5i)$ c) $6i(-3 + 4i)$

d) $(4 - 3i)(2 + 7i)$ e) $(3 + 4i)(3 - 4i)$ f) $3(7 + 5i) - 4(2 - 6i)$

9) For the following equation, state the values of 'x' and 'y' that make the equations true.

- a) $3 + 2i = x + yi$ b) $-4 + xi = y + 7i$ c) $5(x + 3i) = 15 - yi$

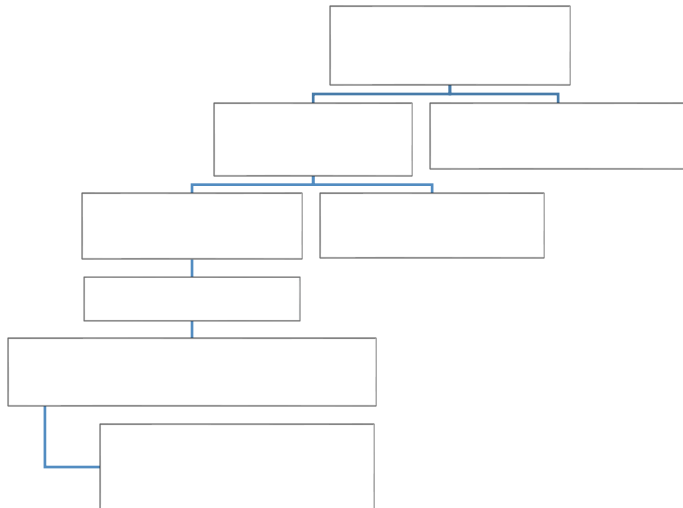
10. Look at the definition of a rational number and explain why the name of these types of numbers makes sense.

11. Fill in the following table for powers of 'i' by writing either 1, -1, i, -i.

i^1	i^2	i^3	i^4	i^5	i^6	i^7	i^8	i^9	i^{10}

12. Based upon the pattern in the table, predict what i^{13} equals.

13. Draw the diagram (in outline format) that shows the relationships of all the numbers systems (see class notes).



14. Fill in the table with an example to show why the number systems is not closed for the given operation. If it is closed for that operation, write "closed" in the box.

Number types	Addition	Subtraction	Multiplication	Division
Complex Numbers				
Real Numbers				
Imaginary numbers				
rational numbers				
Irrational numbers				
Integers				
Whole numbers				
Natural numbers				