Math 5b: Classwork 26
Homework #26 is due May 13-th.

REVIEW

May 6, 2018

- *Binary numbers. Powers of 2:*

n	0	1	2	3	4	5	6	7	8	9
2^n	1	2	4	8	16	32	64	128	256	516

Numbers in decimal notation can be presented like this

$351 = 1 \cdot 2^8 + 0 \cdot 2^7 + 1 \cdot 2^6 + 0 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0 = 101011111b$

Square roots $\qquad\qquad \sqrt{a^2} = a$

$$\sqrt{8} = \sqrt{4 \cdot 2} = \sqrt{4} \cdot \sqrt{2} = \sqrt{2^2} \cdot \sqrt{8} = 2 \cdot \sqrt{2}$$

$$\sqrt{a^8} = \sqrt{(a^4)^2} = a^4$$

- Proportions

To make 13 cookies you need 2 cups of flour. How much flour you need to make 20 cookies?
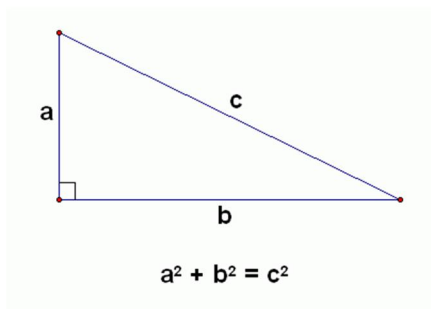
13 cookies – 2 cups
20cookies – x cups

$$\frac{13}{20} = \frac{2}{x}$$

$$13x = 2 \cdot 20$$

Pythagorean Theorem

$a^2 + b^2 = c^2$

HOMEWORK 26: REVIEW

1. Binary numbers:
   a. Write as binaries: 35, 11, 40
   b. Write as Decimals: 101010b, 11100011b

2. Solve equations:

   a) $\frac{3}{8}x = \frac{1}{3}$

   b) $|2x - 5| = 1$

   c) $\frac{x-2}{x-1} = 3$

3. Simplify:

   $\frac{6^5 \cdot 2^4}{3^5 \cdot 2^2} =$

   $\frac{42^2}{6^2} =$

   $\frac{9^2 \cdot 2^4}{6^2} =$

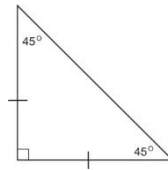 $\sqrt{\frac{4^2}{5^{10}}} =$

   $\sqrt{12} =$

4. A piece of cable 8.5 cm long weighs 52 grams. What will a 10-cm length of the same cable weigh?

5. Find a simple fraction form for the following repeating decimals:

   a) $0.\overline{73}$

   b) $0.8\overline{1}$

6.

   Find the length of legs, if hypotenuse is 10?

7. The standard card deck has 4 suits (hearts, diamonds, spades, and clubs); each suit has 13 different card values: 2 through 10, jack, queen, king, and ace. If you randomly draw one card, what is the probability of getting
   (a) The queen of spades
   (b) A face card (i.e., jack, queen, or king)
   (c) Anything but the queen of hearts

8. Open parenthesis, simplify:

   (a) $3(a - 5) - 2(2a - 9) =$

   (b) $12x - 3x(x + 4) =$

   (c) $5x - 5(7 - a + x) =$

   (d) $-3z - (z - 4) + 2(2z - 5) =$

   (e) $a(a + b) + b(a + 1) =$

   (f) $2a(a - 2) - a(a - 1) =$

   Open parenthesis, simplify.

   $(2x - 3)^2 =$ $(4x - 5)(4x + 5) =$