MATH5 CLASSWORK 26: REVIEW

May, 6 2018

- ***Binary numbers. Powers of 2:***

n	0	1	2	3	4	5	6	7	8	9
$\mathbf{2^n}$	1	2	4	8	16	32	64	128	256	516

Numbers in decimal notation can be presented like this

$351 = 1\cdot2^8 + 0\cdot2^7 + 1\cdot2^6 + 0\cdot2^5 + 1\cdot2^4 + 1\cdot2^3 + 1\cdot2^2 + 1\cdot2^1 + 1\cdot2^0 = 101011111b$

$351 = 1\cdot2^8 + 0\cdot2^7 + 1\cdot2^6 + 0\cdot2^5 + 1\cdot2^4 + 1\cdot2^3 + 1\cdot2^2 + 1\cdot2^1 + 1\cdot2^0 = 101011111b$

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

$\sqrt{8} = \sqrt{4\cdot2} = \sqrt{4}\cdot\sqrt{2} = \sqrt{2^2}\cdot\sqrt{8} = 2\cdot\sqrt{2}$

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

- Proportions

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

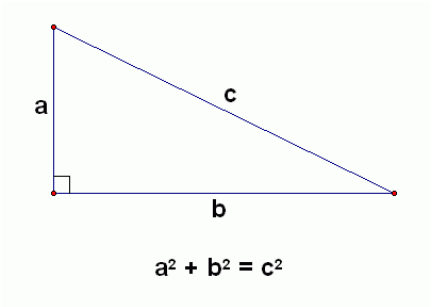
13 cookies – 2 cups

20cookies – x cups

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

$$13x = 2\cdot20$$

Pythagorean Theorem



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

MATH5 HOMEWORK 26: REVIEW

May, 6 2018

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:

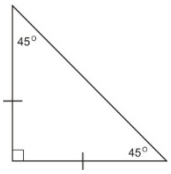
   $\frac{6^5 \cdot 2^4}{3^5 \cdot 2^2} =$ $\frac{42^2}{6^2} =$ $\frac{9^2 \cdot 2^4}{6^2} =$ $\sqrt{\frac{4^2}{5^{10}}} =$ $\sqrt{12} =$

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) $0.\overline{81}$

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.

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