

Rapid Fire

True or False?

1) $2^{1/x} = \frac{1}{2^x}$

2) $x^{1/2} = |x|^{1/2}$

3) $x^{-1/2} \cdot x^{1/2} = x^0$

4) $x^{-1/2} + x^{1/2} = \frac{(x+1)\sqrt{x}}{x}$

5) if $y^x = 1$ and $x > 0$ Then y has to be 1

6) if $y^x = 1$ and x can be any number, then y can be any number, where there will always be some x , for that y to make the equation true.

7) Simplify the radical and say whether the equality holds:

$$\sqrt{36000} = \frac{60\sqrt{29300}}{\sqrt{2930}}$$

8) $200\sqrt{20} = 800\sqrt{\frac{75}{15}}$

9) $\sqrt{\frac{|x+1|}{x^2}} \geq \frac{1}{\sqrt{x}}$ if $x > 1$

10) $\frac{1}{\sqrt{x}} > \frac{1}{x}$ if $0 < x < 1$

11) $y^{\frac{1}{x}} = \sqrt[x]{y^x}$ where the notation $\sqrt[x]{\quad}$ represents x^{th} root.

12) $1000^{\frac{1}{3}} = 100^{\frac{1}{2}}$

13) $|y-1| = x$ has a solution for all values of y .

14) $|y-1| = x$ has a solution for all values of x

15) $|y-1| = x^2$ has a solution for all values of x

16) If $x^2 + y^2 = z^2$ then $x + y > z$

17) If $x^2 + y^2 = z^2$ then $x + z > y$

18) $3 - x - x^2 - x^3 = -(3 + x(x^2 + x + 1)) + 6$

19) $(-x+1)(2x+5) = (-5-2x)(x-1)$

20) $(\sqrt{x}+1)(\sqrt{x}-1) = x-1$

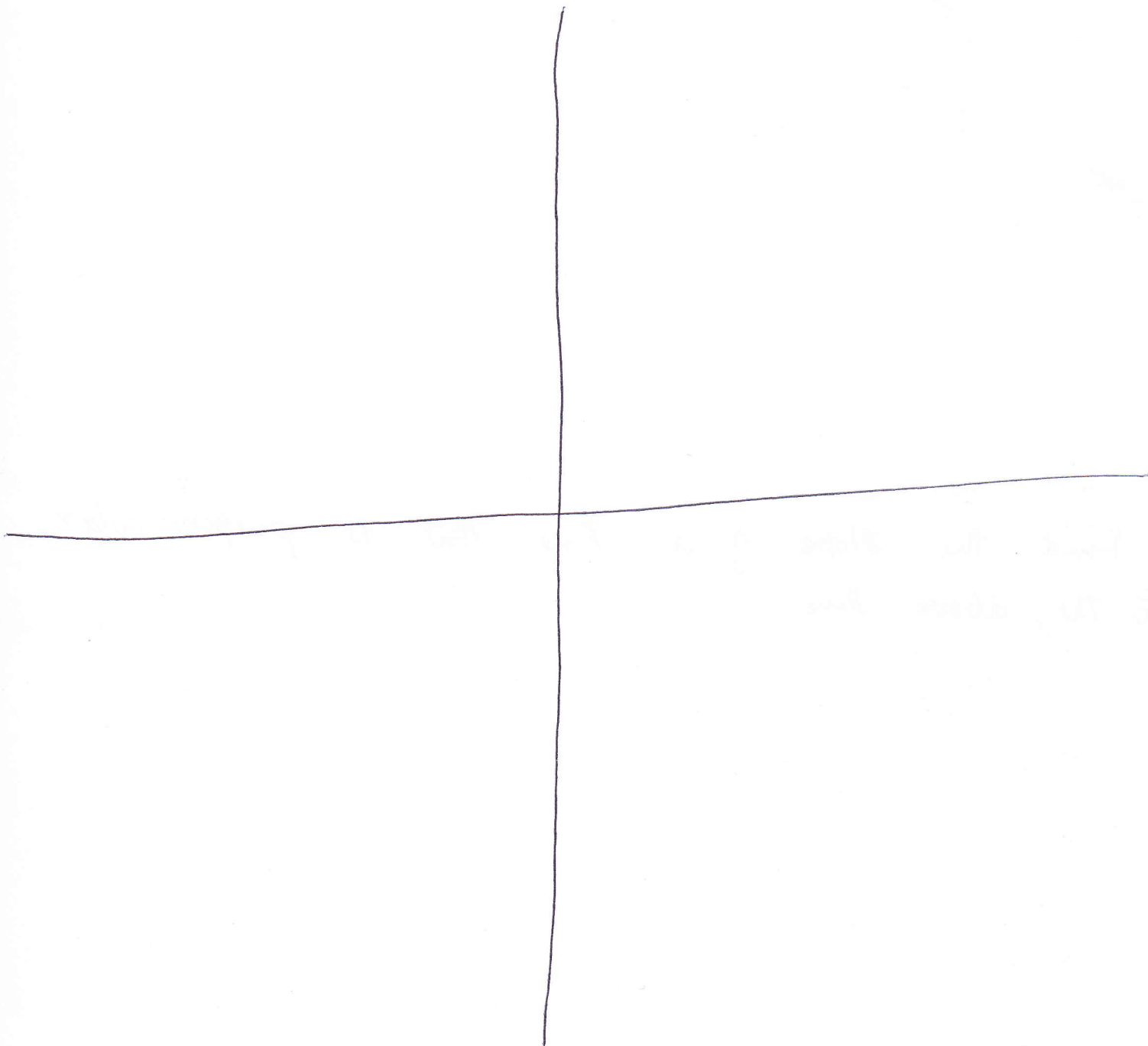
21) $-2(-2(-2+x)) = 4x-6$

22) $\frac{1}{1 + \frac{1}{1 + \frac{1}{x}}} = ?$ (Solve please)

Problems

1) Graph the following

(i) $y = \frac{1}{x} - 3$, (ii) $y = -x^2$, (iii) $y = 2^x$, (iv) $y = 2^{1/x}$



2) Find the slope of the line represented by the following equation

(i) $2y = 7 - 3x + 5y$

(ii) Find the slope of a line that is perpendicular to the above line.

3) There are 4 kids in a middle school that are running for student body President's election. The probability of a kid ^{// NOT //} getting elected is proportional to the inverse of number of years they have been in that school district. It is clear that one and only one kid will be elected President. The kids are Romaina, Faria, David and Allan. Romaina has been with the district for 4 years, Faria for 7 years, David for 3 years and Allan for 5 years. What are the chances that Faria will be elected President?

4) From an embryo that has 1000 cells, each cell splits and converts into 2 cells. It takes 1 day for a cell to split and generate two cells. Create an equation that will give the total number of cells in the growing baby "N" number of days from now.

5) There are 10 red balls and 10 blue balls. How many different types of "sets" of 4 balls can be created by a three year old using the available balls? Two sets are of the same type if they contain same number of balls of a color.

6) What are the important things to keep in mind while aiming and shooting angry birds? Explain the importance of each of the items.