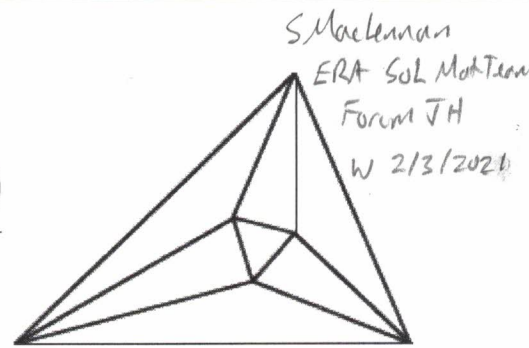
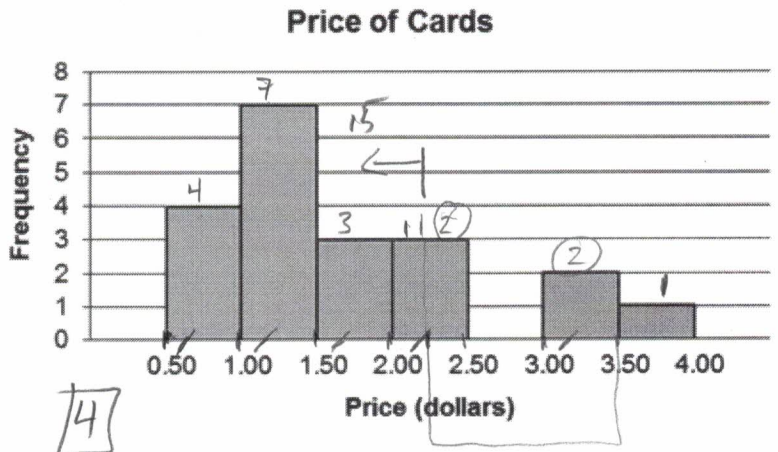


Meet 5 – Event A 2018-19



Questions are worth 2-2-2-4-4 points respectively.
No calculators allowed

4 1. The histogram shows the prices of various greeting cards. If 15 of the greeting cards cost \$2.25 or less, how many greeting cards cost more than \$2.25 and less than \$3.50?

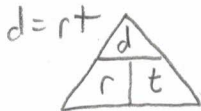


9/38 2. A sock drawer contains 10 black socks, 6 white socks, and 4 blue socks. Hamza reaches in and randomly pulls out 2 socks. What is the probability that both are black? Write your answer as a reduced fraction.

10K 6W 4B $P(\text{1st sock is K}) = \frac{10}{20}$ $P(\text{2K}) = \frac{10}{20} \cdot \frac{9}{19} = \frac{9}{38}$

20 $P(\text{2nd sock is K}) = \frac{20}{19}$

4 mi 3. Emilio drove to work on Monday at an average speed of 30 miles per hour and arrived 1 minute late. He left at the same time on Tuesday, drove an average speed of 40 miles per hour, and arrived 1 minute early. How many miles does Emilio drive to work each day?



$d = 30(t + \frac{1}{60}) = 30t + \frac{1}{2}$ $30t + \frac{1}{2} = 40t - \frac{2}{3}$

$d = 40(t - \frac{1}{60}) = 40t - \frac{2}{3}$ $-30t + \frac{2}{3} = -30t + \frac{2}{3}$

$\frac{1}{6} = 10t$ $t = \frac{1}{10} \cdot \frac{7}{6} = \frac{7}{60}$

$d = 40(\frac{7}{60} - \frac{1}{60}) = 40 \cdot \frac{6}{60}$

$d = \boxed{4 \text{ mi}}$

$f(x+1) = \frac{2}{3}x^2 - \frac{2}{3}x$ 4. The function $f(x)$ is defined as follows:

$f(x+1) = \frac{2}{3}(x+1)(x+1-1)(x+1-2)$

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

$f(x) = \frac{2}{3}x(x-1)(x-2)$ $(a+b)(a-b) = a^2 - b^2$

What is $f(x+1)$? Write your answer as a simplified polynomial in descending order.

$= \frac{2}{3}x(x+1)(x-1) = \frac{2}{3}x(x^2-1) = \frac{2}{3}(x^3-x) = \frac{2}{3}x^3 - \frac{2}{3}x$

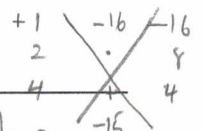
16 5. The addition problem to the right is not correct if the numbers are interpreted as base 10 numbers. In what number base is the problem correct? Let $n = \text{base}$ $189_n = 1 \cdot n^2 + 8n + 9$

$56_n + 77_n + 84_n + 38_n = 5n + 6 + 7n + 7 + 8n + 4 + 3n + 8 = 23n + 25 = n^2 + 8n + 9$

$216 = 2 \times 10^2 + 1 \times 10^1 + 6 \times 10^0$

$0 = n^2 - 15n - 16$
 $0 = (n-16)(n+1)$

$$\begin{array}{r} 56 \\ 77 \\ 84 \\ + 38 \\ \hline 189 \end{array}$$



$n-16=0 \Rightarrow n=16$
 $n+1=0 \Rightarrow n=-1$ $n=16 > 0$