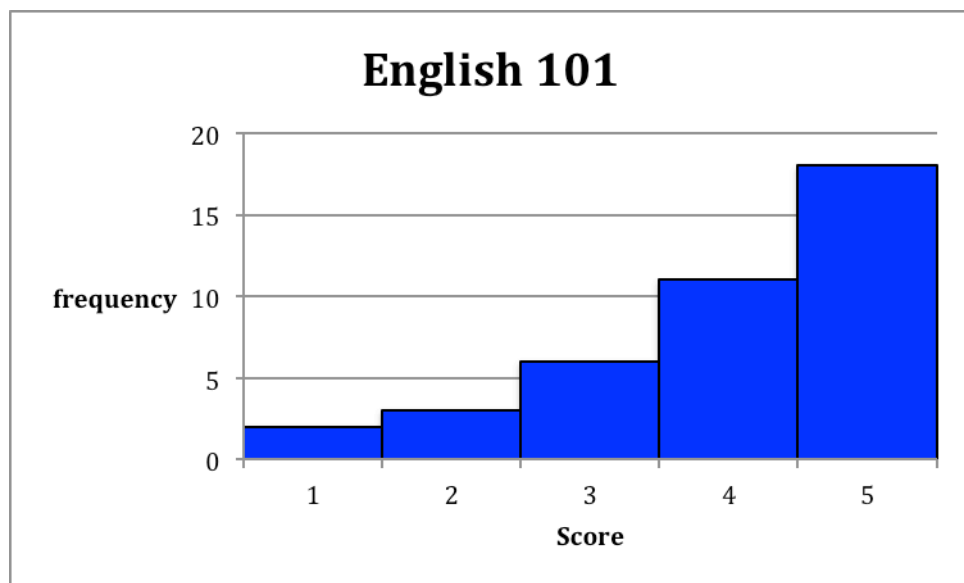**MATH E-3:**   **Practice Questions for Exam 1: Solutions (Please let us know if you think there are any typos!!)**

Question 1:

a)

Skewed left.

b)   Mean score = **4**   c)   Median score = **4**

d)   Standard deviation = 1.1619 so **1.2** to 1 decimal place.

Score	deviations	sq. devs	Frequency	Product
1	-3.0	9.0	2	18
2	-2.0	4.0	3	12
3	-1.0	1.0	6	6
4	0.0	0.0	11	0
5	1.0	1.0	18	18
			sum =	54
			div by 40	1.35
			sq. root =	1.1619
			rounded	**1.2**

e)   mode = **5**

f)   Range = 5 − 1 = **4**.

g)   29/40 or **72.5%** percent of the students gave the course a 4 or a 5.

Question 2: Do the following calculations

a) $-7-4+(5-3) \times 3^2 \div 6 = $ **-8**.

b) Convert to a decimal - Round to two decimal places.

i) $\frac{2}{5} = $ **0.4**   ii) $\frac{12}{8} = $ **1.5**   iii) $\frac{5}{6} = $ **0.83**

c) Convert to a percent:

i) $0.23 = $ **23%**   ii) $3.75 = $ **375%**   iii) $0.015 = $ **1.5%**

d) $5! = $ **5*4*3*2*1 = 120**

e) $(379)^0 = $ **1**.

f) **π is real and irrational**.

Question 3:

a) 7450 increased by 3% = **1.03 * 7450 = 7673.5**

b) $30 = 15% of what?? 30/0.15 = $200; new wage is $200 + $30 = **$230**.

Question 4:

a) **18.2%** increase in total expenditures.

b) Insurance goes from $11,880 to $15,600 = **31.3% increase**.

c) $7480 spent on food in 2000, $7800 in 2001. **So more (4.3% more) in 2001**.

Question 5:

a) 30% discount followed by a 40% discount = a **58% discount – regardless of which discount comes first.**

b) If unemployment goes from 8% to 10%, it has increased by **25%**.

c)   If you begin with a salary of $100, a 10% decrease takes you down to $90; but a 10% increase only gets you back up to $99. The second 10% is calculated on a lower base. To get back up to the original $100 you would need an increase of 11.1%.

Question 6:

a) Pascal's Triangle as far as the row for 5 coins.

```
              1     1
           1     2     1
        1     3     3     1
     1     4     6     4     1
  1     5    10    10     5     1
```

b) Probability of getting one head when you toss four coins = 4/16 = **0.25**

c) Chance of getting at least two heads if you toss five coins = 26/32 = **0.81**

d) When you toss two dice at once, chance of getting a total of nine or more = 10/36 = **0.28**

e) When you toss two dice at once, chance of getting a total divisible by 3 = 12/36 = **0.33**