Name: _____

EOC Review #8

153) Richard has 5 shirts, 6 pairs of jeans, and 3 vests. How many different outfits, each composed of a shirt, a pair of jeans, and a vest, can he make?

Fund. Counting Princ.

A. 6
B. 14
C. 33
D. 90

5 x 6 x 3 = 90

155) This chart shows the number of students, by gender, in each grade at a local high school. The principal will randomly select one student to meet the governor.

	9th	10th	11th	12th
Female	80	95	75	80
Male	75	100	75	70

Let A = {choosing a female} and B = {choosing a ninth grader}. What is $P(B|A)$?

↳ B then A

A. $\frac{8}{65}$
B. $\frac{31}{66}$
C. $\frac{16}{31}$
D. $\frac{8}{33}$

9th grade female = 80
total females 330

156) A standard deck of playing cards has 52 cards. The deck has the same number of black and red cards and has 4 Jacks, two red and two black. What is the probability of randomly picking a Jack or a red card from a standard deck?

A. $\frac{30}{52}$
B. $\frac{28}{52}$
C. $\frac{4}{52}$
D. $\frac{2}{52}$

$\frac{4}{52} + \frac{26}{52} - \frac{2}{52} = \frac{28}{52}$

* also check for Simplified answers on your test

157) Yi has a bag of 15 stones: 8 blue and 7 purple and randomly chooses 3 stones from the bag. If Yi picks 2 blue stones and does not return them to the bag, what is the probability that she will pick a purple stone next?

A. $\frac{7}{15}$
B. $\frac{6}{15}$
C. $\frac{7}{13}$
D. $\frac{6}{13}$

15 - 2 blue = 13 left

$\frac{7}{13}$ $\frac{\text{purple}}{\text{total}}$

158) Ten students will participate in a spelling contest. How many outcomes for first, second, and third place are possible?

A. 30
B. 90
C. 120
D. 720

10 x 9 x 8 = 720

160) The yearbook staff includes 8 photographers. One photographer needs to cover a dance, and another needs to cover a basketball game. In how many ways can photographers be assigned to these events?

combination

A. 16
B. 28
C. 56
D. 64

8C1 · 7C1

161) Guests at a wedding reception must choose 1 food item from each of these 3 categories.

Main Dish Entreé: steak, fish, chicken

Vegetable: carrots, green beans, potatoes

Salad: garden, Caesar

How many different dinner combinations are possible?

A. 8
B. 18
C. 56
D. 336

3C1 3C1 2C1

3 · 3 · 2

162) A company assigns passwords to each of its 2000 employees. Each password consists of 3 distinct letters (no repeating letters) and 3 distinct digits. The company assigns a new password to each employee at the beginning of each month. To the nearest year, for how many years will the company be able to supply unique passwords?

A. 468
B. 732
C. 5,616
D. 8,788

26 25 24 10 9 8 = 11232000 passwords

÷ 2000 = 5616 per person

÷ 12 (months/yr) = 468

163) A high school's enrollment is 27% juniors and 31% seniors. What is the probability that a student chosen at random from this high school will be a junior or a senior?

A. $\frac{1}{25}$
B. $\frac{2}{25}$
C. $\frac{29}{50}$
D. $\frac{87}{100}$

add

.27 + .31 = .58

$\frac{58}{100} = \frac{29}{50}$

164) Box A contains marbles: 12 red, 16 blue, 11 green, and 5 yellow. Box B contains chips: 8 red, 7 green, 11 blue, and 1 yellow. If you randomly pick one item from each box, what is the probability that both items will be blue?

A. $\frac{1}{10}$

B. $\frac{4}{27}$

C. $\frac{19}{50}$

D. $\frac{77}{100}$

Blue marble $\frac{16}{44}$ $\frac{11}{27}$ blue chip

multiply

165) After several rounds of a card game, a deck of playing cards contains 10 red-suited cards and 15 black-suited cards. Terry draws cards from this deck without replacement until she has either two red cards or two black cards. To the nearest tenth of a percent, what is the probability that Terry draws two red cards?

A. 15.0%

B. 16.0%

C. 30.8%

D. 34.6%

P(2 red) $\frac{10C2}{25C2} = \frac{45}{300} = 0.15$

P(2 black) $\frac{15C2}{25C2} = \frac{105}{300} = 0.35$

$1 - .35 - .15 = .50$ P(1 red, 1 black)

$.15 + .20 = .35$

$\frac{10}{25} \times .5 = .2$ probability 1 red, 1 black after 2 cards drawn + card is red.

166) The Channel 9 weather forecast for next week lists the following chances of rain:

Day	Tues	Wed	Thurs	Fri	Sat	Sun	Mon
Chance of rain	20%	0%	40%	0%	40%	0%	20%

Assume that the probability for rain each day is independent of the probability for rain on other days of the week. According to the forecast, what is the probability that rain will fall exactly 3 days next week?

A. 0.64%

B. 2.86%

C. 7.04%

D. 22.50%

168) In the first year, the tuition at a local college is $4,000. If the tuition increases by $600 per year, how much will tuition be in the tenth year?

A. $10,600

B. $10,000

C. $ 9,400

D. $ 8,800

$a_1 = 4000$ $n = 10$

$d = 600$ $a_{10} = 4000 + 600(10-1)$

$a_{10} = ?$

$n = 10$

169) Evaluate $\sum_{n=1}^{10}(7-2n)$.

A. −8

B. −13

C. −40

D. −60

$7 - 2(1) = 5 = a_1$

$7 - 2(10) = -13 = a_{10}$

$S_{10} = 10/2\,(5 - 13)$

170) The first term of an arithmetic sequence is −15, and the constant difference is d_1. The first term of another arithmetic sequence is 75, and its constant difference is d_2. If the 10th terms of both sequences are the same, what must be true about d_1 and d_2?

A. $d_1 - d_2 = 10$

B. $d_1 - d_2 = 9$

C. $d_1 + d_2 = 10$

D. $d_1 + d_2 = 9$

$-15 + d_1(9) = 75 + d_2(9)$

$-15 + 9d_1 = 75 + 9d_2$

$9d_1 - 9d_2 = 90$

$d_1 - d_2 = 10$

173) In a geometric sequence where $a_1 = 15$ and $a_5 = 240$, what is the first term in the sequence that is a multiple of 4?

A. $a_2 = 20$

B. $a_3 = 60$

C. $a_4 = 60$

D. $a_4 = 120$

$240 = 15 \cdot r^4$

$16 = r^4$

$r = 2$

15, 30, 60, 120, 240

174) Iman starts with $1 on Day 1 and then doubles her money every day thereafter. On which day will she first have more than $10,000?

A. Day 15

B. Day 14

C. Day 10

D. Day 6

$10{,}000 = 1 \cdot 2^{n-1}$

$10000 = 2^{n-1}$

$\log 10{,}000 = n - 1 \log 2$

$n - 1 = \frac{\log 10{,}000}{\log 2}$

$n = \frac{\log 10{,}000}{\log 2} + 1$

$n = 14.288$

175) On the first of every month, a new library receives a new shipment of 575 book titles. If the library starts the beginning of the first year with 3,000 book titles and does receive a shipment that month, how many book titles will it have at the end of 3 years?

A. 42,900

B. 23,700

C. 5,363

D. 4,150

$3{,}000 = a_1$

$575 = d$

12 months x 3 years = 36

$a_{36} = 3000 + 575(36-1)$

$= 23{,}125 + 575$ for 1st month

178) A career advisor tells Ming that a financial consultant earns $43,000 for the first year, and there is a 3% annual pay raise. If Ming takes a job as a financial consultant, what will be her highest annual salary after working a total of 35 years?

A. $ 86,860

B. $ 88,150

C. $117,472

D. $120,996

$a_1 = 43{,}000$

$r = 1.03$

$n = 35$

$a_{35} = 43{,}000 \cdot 1.03^{34}$