

Math 172 Exam 3 Review

(1) Experimental Probability is based on actually attempting experiments  
Theoretical involves thinking about all possible outcomes.

No.

(2)  $\frac{1}{2}$

(3)  $6 \times 10 = 60$

(4)

(5)  $\frac{20}{64} = \frac{5}{16}$

(6)  $\frac{20}{64} = \frac{5}{16}$

(7)  $\frac{20}{64} = \frac{5}{16}$

(8)  $\frac{2}{7}$

(9)  $\frac{1}{2} = \frac{x+2}{6+x}$

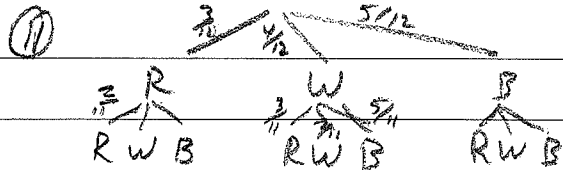
$6+x = 2x+4$

$x=2$

(10)  $\frac{1}{5} = \frac{3}{6+x}$

$x=4$

					1	
				1	1	
			1	2	1	
		1	3	3	1	
	1	4	6	4	1	
1	5	10	10	5	1	
1	6	15	20	15	6	1



(12)  $\frac{3}{12} \cdot \frac{4}{11} = \frac{12}{132} = \frac{1}{11}$

(13)  $\frac{3}{12} + \frac{4}{12} = \frac{7}{12}$

(15) 3:7

(14) 0

Prime  
1, 2, 3, 4, 5, 6, 7, 8, 9, 10

(15) 1:9

(16) 6:4 or 3:2

(17) 2:8 or 1:4

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(19)

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

$$P(A|B) = \text{Probability of not prime given it is odd} \\ = \frac{1}{6} = \frac{\frac{1}{2}}{\frac{6}{2}}$$

$$P(B|A) = \text{Probability of odd given it is not prime} \\ = \frac{1}{7} = \frac{\frac{1}{2}}{\frac{7}{2}}$$

(20)

$$\frac{1 \cdot 1 \cdot 10 \cdot 9 \cdot 8}{2625 \cdot 10 \cdot 9 \cdot 8} = \frac{1}{650}$$

(21)

$${}_{52}C_{13} = 635,013,559,600$$

(22)

$$\sqrt[1]{635,013,559,600}$$

(23)

$$\frac{{}_{13}C_4 \cdot {}_{13}C_2 \cdot {}_{13}C_3 \cdot {}_{13}C_4}{635,013,559,600} = \frac{11404407300}{635,013,559,600}$$

(24)

$P(A \cap B)$  = Probability that a chosen student is both in a 10AM class and regularly eats breakfast

$P(A|B)$  = Probability that a student who regularly eats breakfast is also in a 10AM class.

$P(\bar{B})$  = Probability that a randomly chosen student does not eat breakfast

(25)

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{\frac{1}{5}}{\frac{3}{4}} = \frac{4}{15}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B) = \frac{2}{5} + \frac{3}{4} - \frac{1}{5} = \frac{13}{20}$$

$$P(\bar{B}) = \frac{1}{4}$$

(26)

0	10	20
$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{4}$

$$E(B) = 0 \cdot \frac{1}{4} + 10 \cdot \frac{3}{4} + 20 \cdot \frac{1}{4} = 10$$

$$(27) P(D|N) = \frac{47}{212}$$

$$(28) P(\text{Day} | D) = \frac{24}{99}$$

$$(29) P(D | \text{day}) = \frac{24}{303}$$

(30) Answers may vary

(31) Answers may vary

$$(32) \frac{50}{1000} \cdot 10 + \frac{10}{1000} \cdot 15 + \frac{5}{1000} \cdot 30 + \frac{1}{1000} \cdot 50 + \frac{934}{1000} \cdot 0 = 2.85$$

$$(33) \$1.35 \quad -1.35 + 0.85 = -.50$$

(34) Income = \$2000

Prices = \$850

Gain = 1150

(or  $1000 \times (2 - .85)$ )