Date: \_

## **Algebra 2: Probability Extra Practice**

- 1. <sup>8!</sup>/<sub>4!</sub>
  a) 0
  b) 24
  c) 40,320
  c) 1680
  c) 25
  c) 120
  c) 20
  c) 10
  c) 3. Find the number of distinguishable permutations of the letters HONEST.

  - 4. Find the number of distinguishable permutations of the letters SWEET.
  - **5.** You own 5 cassettes and are taking 2 of them on vacation. In how many ways can you choose 2 cassettes from the 5?
  - **6.** A committee is to consist of two members. If there are five men and six women available to serve on the committee, how many different committees can be formed?

▲ 110	165	<b>©</b> 60	<b>D</b> 55
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7. How many different 3-card hands can be drawn from a standard deck of 52 playing cards?

**8.** In a class of 25 students, 18 have brown eyes. If two students are chosen at random, which expression will calculate the probability that both have brown eyes?

A	$\frac{{}_{18}P_2}{{}_{25}P_2}$	<b>B</b> $\frac{{}_{7}C_2}{{}_{18}C_2}$	<b>©</b> $\frac{{}_{18}C_2}{{}_{25}C_2}$	<b>(b)</b> $\frac{{}_{7}C_{2}}{{}_{25}C_{2}}$
	25-2	18 0 2	25 0 2	25 0 2

**9.** Of 100 students, 27 are taking Calculus, 26 are taking French, and 11 are taking both Calculus and French. If a student is picked at random, what is the probability that the student is taking Calculus or French?

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- **10.** If you draw one card at random from a deck of 15 cards numbered 1 through 15, inclusive, what is the probability that the number you draw is divisible by 3 and even?
- **11.** A drawer contains 10 red socks, 9 white socks, and 8 blue socks. Without looking, you draw out a sock and then draw out a second sock without returning the first sock. What is the probability that the first sock and the second sock are both white?
  - (a)  $\frac{5}{39}$  (b)  $\frac{100}{729}$  (c)  $\frac{4}{39}$  (d)  $\frac{1}{9}$
- **12.** Which of these pairs of events are independent?
  - (A) You remove a blue glove from a drawer without looking, then remove another blue glove.
  - (B) You reach into a basket and draw a name for a prize, return the name into the basket, and then draw a second time for another prize.
  - © Your CD player has a random mode that chooses songs randomly and plays each song once before repeating. While listening to the CD player in random mode, you hear track 5 first and then hear track 3 second.
  - You choose a member of the basketball team to be the center. You choose a different member to be a forward.
  - **13.** Two urns both contain red balls and white balls. Urn I contains 3 red balls and 3 white balls, and Urn II contains 5 red balls and 2 white balls. A ball is drawn from each urn. What is the probability that both balls are white?
- **14.** John is getting his ATM card activated. He must select a password containing 4 nonzero digits to be able to use the card. How many passwords are allowed if no digit may be used more than once?
  - (a) 3,024
    (b) 5,040
    (c) 15,120
    (d) 30,240

**15.** In a refrigerator, 6 bottles of soft drinks and 8 bottles of fresh juice are being cooled. How many ways can one drink of each type be selected?

	<ul><li>A 1</li><li>B 14</li></ul>	© D	36 48
 16.	P(2 brown-haired children)		
		©	$\frac{32}{69}$
	(b) $\frac{10}{23}$	D	$\frac{7}{39}$
 17.	P(2 black-haired children)		
		©	$\frac{32}{69}$
	<b>(B)</b> $\frac{30}{69}$	D	$\frac{7}{39}$

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**18.** A box contains 6 nuts, 8 bolts, and 4 screws. If 3 objects are selected in succession randomly, what is the probability of selecting a nut, then a bolt, then a screw, if replacement occurs each time?

<b>(A)</b>	$\frac{8}{243}$	©	$\frac{1}{27}$
B	$\frac{16}{243}$	٥	1

**19.** What is the probability of drawing a spade each time a card is drawn from a deck of 52 cards 3 times, if replacement occurs each time?

A	$\frac{1}{2197}$	©	$\frac{1}{64}$
B	$\frac{11}{850}$	D	$\frac{3}{4}$

**20.** What is the probability of selecting a vowel or a letter that appears twice in the word *arrangement*?

(a) 
$$\frac{7}{26}$$
 (b)  $\frac{9}{26}$   
(c)  $\frac{9}{26}$   
(c)  $\frac{9}{26}$   
(c)  $\frac{11}{26}$ 

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## Algebra 2: Probability Extra Practice Answer Section

**1.** D **2.** B **3.** 6! = 720 **4.**  $\frac{5!}{2} = 60$ **5.** 10 **6.** D **7.** 22,100 **8.** C **9.**  $\frac{21}{50}$ **10.**  $\frac{2}{15}$ **11.** C **12.** B **13.** independent;  $\frac{1}{7}$ **14.** A **15.** D **16.** B **17.** A **18.** A **19.** C **20.** A