

12-1 thru 12-5 Review ODDS

1. $5 \cdot 15 \cdot 6 = 450$ ways

3a) $7! = 5040$

b) $7P_5 = \frac{7!}{2!} = 2520$

c) $1 \cdot 6! = 720$

5. $\frac{9!}{3! \cdot 2! \cdot 4!} = 1260$

7. a) $18C_2 = \frac{18 \cdot 17}{2} = 153$

b) $18 \cdot 17 \cdot 16 = 4896$

9. $\frac{12!}{2! \cdot 10!} (2x)^{10} (-5)^2 = \frac{12 \cdot 11}{2} (2x)^{10} (25)$
 $= 1,689,600 x^{10}$

11

$$\begin{array}{ccccccc} & & 1 & & 1 & & \\ & & 2 & & 2 & & \\ 1 & 3 & 3 & 1 & & & \\ 1 & 4 & 6 & 4 & 1 & & \\ 1 & 5 & 10 & 10 & 5 & 1 & \end{array}$$

$(x^2)^5 + 5(x^2)^4(-3y) + 10(x^2)^3(-3y)^2 + 10(x^2)^2(-3y)^3 + 5(x^2)(-3y)^4 + (-3y)^5$
 $x^{10} + 15x^8y + 90x^6y^2 - 270x^4y^3 + 405x^2y^4 - 243y^5$

13.
$$\frac{\text{outer ring} \quad \text{inner}}{(4^2\pi - 3^2\pi) + 2^2\pi}$$

$$\frac{16\pi}{16\pi} = .69$$

17. Men women = 58.5%
 $.54(.53) + .46(.65)$

★ Answer correction!!
 15f) (Thank you per 1 + L.B. per 2)
 200k or 2DP or 1C+1D

15. a) $6/11$

b) $5/11 \cdot 2/11 = 10/121$

c) $5/11 \cdot 4/10 \cdot 4/9 = 8/99$

d) $\frac{4C_2}{11C_2} = \frac{6}{55}$

e) $\frac{5C_1 \cdot 6C_2 + 5C_2 \cdot 6C_1 + 5C_3}{11C_3}$
 $= \frac{75 + 60 + 10}{165} = \frac{145}{165} = \frac{29}{33}$

$$\frac{11C_2 + 2C_2 + 5C_1 \cdot 2C_1}{11C_2}$$

$$\frac{10 + 1 + 10}{55} = \frac{21}{55}$$

Review 12-1 → 12-5

Evens

2. $2^{10} = \boxed{1024}$

4. $\frac{12!}{2!2!3!2!} = \boxed{9,979,200}$
I N E L

6. $\frac{1}{1 \text{ digit "5"}} + \frac{5 \times 1}{\text{or 2 digits "5"}} + \frac{4 \times 5 \times 1}{\text{or 3 digits "5"}} = \boxed{26}$

8. a) $12C_2 \times 20C_3$
 66×1140
 $= \boxed{75240}$

b) (toppings ONLY)

$20C_1 + 20C_2$
 $20 + 190 = \boxed{210}$

10. $r = 0, 1, 2, 3, 4, 5, \textcircled{6}^{7th}$

$\frac{10!}{6!4!} (3x)^4 (-\sqrt{2})^6$
 $210 (81x^4) (8)$
 $= \boxed{136,080x^4}$

12. a) $P(\text{sums of 6, 10, 11, 12})$
3,1 6,4 5,6 6,6
1,5 4,6 6,5
4,2 5,5 $\boxed{11/36}$
2,4
3,3

12b) $1 - P(\text{sum of 3 or 4})$

$1 - \frac{5}{36} = \boxed{31/36}$

1,2 2,2
2,1 3,1
1,3

12c)

$P(\text{sum} = 2 \text{ or } 4)$

1,1 1,3
3,1
2,2

$\frac{4}{36} = \boxed{\frac{1}{9}}$

14. a) $1 - \frac{8}{20} = \frac{12}{20} = \boxed{\frac{3}{5}}$

b) $\frac{10}{20} + \frac{8}{20} - \frac{7}{20} = \boxed{\frac{11}{20}}$

16. $\frac{2}{7} \text{ vowels}$
 $\frac{7}{7} \text{ letters}$