



## Algebra 2 – Year 2

Partner Test: Lessons 11.1-11.2, 11.8

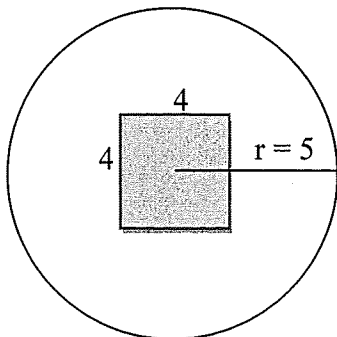
Name: \_\_\_\_\_

Date: \_\_\_\_\_ Hour: \_\_\_\_\_

Show the set up for ALL problems!

**For problems 1–2, find the probability of each event as a simplified fraction and a percent, to the nearest tenth.**

1. If one M&M is randomly selected from a dish containing 7 green, 4 red, 5 blue, and 8 yellow M&M's, find the probability that a red M&M is selected. 1. \_\_\_\_\_  
FRACTION DECIMAL PERCENT
2. One student is randomly selected from a group consisting of 16 students from LCN, 10 students from Utica, and 9 from Dakota. Find the probability that the student selected is from LCN. 2. . \_\_\_\_\_  
FRACTION DECIMAL PERCENT
3. A car has 12 choices for outside color, 5 choices for interior design, 3 different tire packages, and 3 different engine sizes. How many different cars can be produced? 3. \_\_\_\_\_
4. Find the number of possible passwords when using 2 letters followed by 3 digits then 2 letters, with repeats allowed. 4. \_\_\_\_\_
5. Assume that a dart thrown at the circular board shown below will hit the board and that each point on the board is equally likely to be hit. To the nearest tenth of a percent, find the probability that the dart will hit the shaded area. (Remember: Area of a circle =  $\pi r^2$ ) 5. \_\_\_\_\_







# Algebra 2 - Year 2

Partner Test: Lessons 11.1-11.2, 11.8

Name: Key  
Date: 10/20/15 Hour: \_\_\_\_\_

32

Show the set up for ALL problems!

For problems 1-2, find the probability of each event as a simplified fraction and a percent, to the nearest tenth.

1. If one M&M is randomly selected from a dish containing 7 green, 4 red, 5 blue, and 8 yellow M&M's, find the probability that a red M&M is selected.  $7+4+5+8=24$   $P(\text{red}) = \frac{4}{24} = \frac{1}{6}$

1.  $\frac{1}{6}$  0.167 16.7%  
FRACTION DECIMAL PERCENT

2. One student is randomly selected from a group consisting of 16 students from LCN, 10 students from Utica, and 9 from Dakota. Find the probability that the student selected is from LCN.

$16+10+9=35$   $P(\text{LCN}) = \frac{16}{35}$

2.  $\frac{16}{35}$  0.457 45.7%  
FRACTION DECIMAL PERCENT

3. A car has 12 choices for outside color, 5 choices for interior design, 3 different tire packages, and 3 different engine sizes. How many different cars can be produced?

$12 \cdot 5 \cdot 3 \cdot 3 = 540$

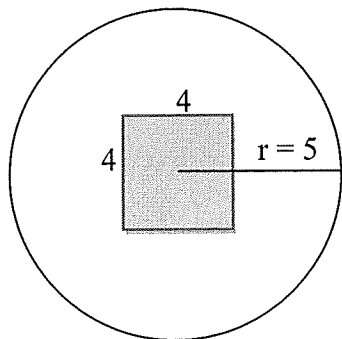
3. 540

4. Find the number of possible passwords when using 2 letters followed by 3 digits then 2 letters, with repeats allowed.

$26 \cdot 26 \cdot 10 \cdot 10 \cdot 10 \cdot 26 \cdot 26$

4. 456976000

5. Assume that a dart thrown at the circular board shown below will hit the board and that each point on the board is equally likely to be hit. To the nearest tenth of a percent, find the probability that the dart will hit the shaded area. (Remember: Area of a circle =  $\pi r^2$ )



Area of square =  $4 \cdot 4 = 16$

Area of circle =  $\pi (5)^2 = 25\pi$

$P(\text{shaded}) = \frac{16}{25\pi} = 0.204 \rightarrow 20.4\%$

5. 20.4%

13

13

12

12

13

13



For problems 6-13, evaluate each expression. (Show work)

6.  ${}_{12}P_5$   
 $\frac{12!}{(12-5)!} = 95040$

7.  $\frac{14!}{4! \times 9!} = 10010$

6. 95040 <sup>12</sup>

7. 10010 <sup>12</sup>

8.  ${}_9C_4$   
 $\frac{9!}{(9-4)!4!} = 126$

9.  $\frac{10! \times 0!}{(10-7)! \times 5!}$   
 $\frac{10!}{3!5!} = 5040$

8. 126 <sup>12</sup>

9. 5040 <sup>12</sup>

10. Find the number of ways 4 people can be chosen out of 10 to be on LCN's Spirit Committee.

$${}_{10}C_4 = \frac{10!}{(10-4)!4!} = 210$$

10. 210 <sup>12</sup>

11. In how many ways can a captain, co-captain, and team manager be chosen from among the 18 members of a volleyball team?

$${}_{18}P_3 = \frac{18!}{(18-3)!3!} = 4896$$

11. 4896 <sup>12</sup>

12. Our display case has room for 10 trophies. If the LCN basketball team has won 24 trophies, in how many different ways can you arrange 10 of the trophies on the shelf?

$${}_{24}C_{10} = \frac{24!}{(24-10)!10!} = 1961256$$

12. 1961256 <sup>12</sup>

13. There are 12 singers left in a round of American Idol. In how many different orders can they perform?

$$12! = 479001600$$

13. 479001600 <sup>12</sup>

Expand the binomial raised to a power.

14.  $(x-4)^5$     1 5 10 10 5 1

$$\binom{5}{0}x^5(4)^0 - \binom{5}{1}x^4(4)^1 + \binom{5}{2}x^3(4)^2 - \binom{5}{3}x^2(4)^3 + \binom{5}{4}x^1(4)^4 - \binom{5}{5}x^0(4)^5$$

$$x^5 - 20x^4 + 160x^3 - 640x^2 + 1280x - 1024$$

