

Remote Learning Packet

NB: Please keep all work produced this week. Details regarding how to turn in this work will be forthcoming.

April 27 - May 1, 2020

Course: Pre-Algebra

Teacher(s): Mrs. Frank leslie.frank@greatheartsirving.org

Mrs. Voltin mary.voltin@greatheartsirving.org

Weekly Plan:

Monday, April 27

- Addition Speed Test
- Lesson 11.1, Permutations

Tuesday, April 28

- Subtraction Speed Test
- Lesson 11.1, Permutations

Wednesday, April 29

- Multiplication Speed Test
- Lesson 11.2, Combinations

Thursday, April 30

- Division Speed Test
- Lesson 11.2, Combinations

Friday, May 1

- Powers Speed Test
- Lesson 11.3, The Probability of an Event

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

Student Signature

Parent Signature

Monday, April 27

1. Your speed test for the day will be the addition speed test. Time yourself, and write the time it took you to complete the entire test at the top of the page. After you have finished the test, use the answer key to check for accuracy. Write your score at the top of the page.
2. Read lesson 11-1, Permutations, on pages 396-397. Read it once. Go back and read it again and work the example problems. Remember that a *permutation* is an *arrangement* or a *way* to do something. Permutations also must have a particular order. These facts are important! Work the **Class Exercises** on page 398, #1-12, all. For extra help, go to:

<https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:combinatorics-precalc/v/factorial-and-counting-seat-arrangements>

<https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:combinatorics-precalc/v/possible-three-letter-words>

<https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:combinatorics-precalc/v/permutations-and-combinations-1>

<https://www.khanacademy.org/math/precalculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:combinatorics-precalc/v/permutations-and-combinations-2>

If you use these links for extra help, go back and review the lesson in the textbook before you start your homework. If you're totally stuck, look at the answer key, but only one problem at a time...one line at a time!

3. Please do not look at your answer key each day until you have worked every problem. After you complete your homework, compare it to the answer key. Put away your pencil, and USE YOUR RED PEN. Correct any mistakes that you made in red pen.

Tuesday, April 28

1. Your speed test for the day will be subtraction.
2. Review lesson 11-1. Your homework assignment for today is HW 11.1, pp. 398-399, **Written Exercises**, #1-12, all.
3. Please do not look at your answer key each day until you have worked every problem. After you complete your homework, compare it to the answer key. Put away your pencil, and USE YOUR RED PEN. Correct any mistakes that you made in red pen.

Wednesday, April 29

1. Your speed test for the day will be multiplication.
2. Read lesson 11-2, on pages 401-402. Read it once. Go back and read it again and work the example problems. Do the **Class Exercises** at the top of page 402, 1-10, all. For extra help, please look at the following link:

<https://www.khanacademy.org/math/prec calculus/x9e81a4f98389efdf:prob-comb/x9e81a4f98389efdf:combinations/v/introduction-to-combinations>

If you watch the video, go back and read the lesson again before you do the class exercises. If you're totally stuck, look at the answer key, but only one problem at a time...one line at a time!

3. Please do not look at your answer key each day until you have worked every problem. After you complete your homework, compare it to the answer key. Put away your pencil, and USE YOUR RED PEN. Correct any mistakes that you made in red pen.

Thursday, April 30

1. Your speed test for the day will be division.
2. Review lesson 11-2. Review the video from yesterday's assignment. Your homework assignment for today is HW 11-2, pp. 402-403, **Problems**, #2-12, evens.
3. Please do not look at your answer key each day until you have worked every problem. After you complete your homework, compare it to the answer key. Put away your pencil, and USE YOUR RED PEN. Correct any mistakes that you made in red pen.

Friday, May 1

1. Your speed test for the day will be powers. **Challenge: This week, complete the first column of the speed test AND the first four problems in the second column!**
2. Read lesson 11-3, on pages 404-406. Read it once. Go back and read it again and work the example problems. Do the **Class Exercises** on page 406, #1-12, all. For extra help, please look at the following link:

<https://www.khanacademy.org/math/probability/probability-geometry/probability-basics/v/basic-probability>

<https://www.khanacademy.org/math/probability/probability-geometry/probability-basics/v/simple-probability>

If you watch the video, go back and read the lesson again before you do the class exercises. If you're totally stuck, look at the answer key, but only one problem at a time...one line at a time!

3. Please do not look at your answer key each day until you have worked every problem. After you complete your homework, compare it to the answer key. Put away your pencil, and USE YOUR RED PEN. Correct any mistakes that you made in red pen.

$$\begin{array}{r} 2 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$$

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$$\begin{array}{r} 7 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +7 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ +6 \\ \hline \end{array}$$

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$$\begin{array}{r} 9 \\ +4 \\ \hline \end{array}$$

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$$\begin{array}{r} 8 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ +3 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 8 \\ +4 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 2 \\ +9 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 7 \\ +2 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 8 \\ +8 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 4 \\ +6 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 9 \\ +5 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array}$$

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$$\begin{array}{r} 4 \\ +7 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 2 \\ +5 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 9 \\ +6 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 3 \\ +3 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 7 \\ +3 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 3 \\ +4 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 8 \\ +2 \\ \hline 10 \end{array}$$

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$$\begin{array}{r} 4 \\ +2 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array}$$

$$\begin{array}{r} 6 \\ +3 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 6 \\ +6 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 8 \\ +9 \\ \hline 17 \end{array}$$

$$\begin{array}{r} 5 \\ +5 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 6 \\ +2 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 9 \\ +9 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 7 \\ +9 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 5 \\ +6 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 8 \\ +5 \\ \hline 13 \end{array}$$

5	12	11	9	16
<u>- 2</u>	<u>- 4</u>	<u>- 9</u>	<u>- 7</u>	<u>- 8</u>

10	14	14	14	8
<u>- 6</u>	<u>- 5</u>	<u>- 7</u>	<u>- 6</u>	<u>- 3</u>

15	11	12	7	15
<u>- 7</u>	<u>- 4</u>	<u>- 7</u>	<u>- 2</u>	<u>- 6</u>

12	6	10	7	10
<u>- 9</u>	<u>- 3</u>	<u>- 3</u>	<u>- 4</u>	<u>- 8</u>

9	13	6	13	9
<u>- 4</u>	<u>- 7</u>	<u>- 2</u>	<u>- 9</u>	<u>- 3</u>

12	17	10	8	18
<u>- 6</u>	<u>- 9</u>	<u>- 5</u>	<u>- 6</u>	<u>- 9</u>

16	8	11	11	13
<u>- 9</u>	<u>- 4</u>	<u>- 3</u>	<u>- 6</u>	<u>- 5</u>

5	12	11	9	16
<u>- 2</u>	<u>- 4</u>	<u>- 9</u>	<u>- 7</u>	<u>- 8</u>
3	8	2	2	8

10	14	14	14	8
<u>- 6</u>	<u>- 5</u>	<u>- 7</u>	<u>- 6</u>	<u>- 3</u>
4	9	7	8	5

15	11	12	7	15
<u>- 7</u>	<u>- 4</u>	<u>- 7</u>	<u>- 2</u>	<u>- 6</u>
8	7	5	5	9

12	6	10	7	10
<u>- 9</u>	<u>- 3</u>	<u>- 3</u>	<u>- 4</u>	<u>- 8</u>
3	3	7	3	2

9	13	6	13	9
<u>- 4</u>	<u>- 7</u>	<u>- 2</u>	<u>- 9</u>	<u>- 3</u>
5	6	4	4	6

12	17	10	8	18
<u>- 6</u>	<u>- 9</u>	<u>- 5</u>	<u>- 6</u>	<u>- 9</u>
6	8	5	2	9

16	8	11	11	13
<u>- 9</u>	<u>- 4</u>	<u>- 3</u>	<u>- 6</u>	<u>- 5</u>
7	4	8	5	8

$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

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$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

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$$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$$

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$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 3 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 8 \\ \times 4 \\ \hline 32 \end{array}$$

$$\begin{array}{r} 2 \\ \times 9 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$$

$$\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$$

$$\begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array}$$

$$\begin{array}{r} 7 \\ \times 7 \\ \hline 49 \end{array}$$

$$\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 3 \\ \times 5 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 7 \\ \times 8 \\ \hline 56 \end{array}$$

$$\begin{array}{r} 4 \\ \times 7 \\ \hline 28 \end{array}$$

$$\begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array}$$

$$\begin{array}{r} 2 \\ \times 5 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 9 \\ \times 6 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 3 \\ \times 9 \\ \hline 27 \end{array}$$

$$\begin{array}{r} 3 \\ \times 3 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 7 \\ \times 3 \\ \hline 21 \end{array}$$

$$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 8 \\ \times 2 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 5 \\ \times 4 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 6 \\ \times 7 \\ \hline 42 \end{array}$$

$$\begin{array}{r} 4 \\ \times 2 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 9 \\ \times 4 \\ \hline 36 \end{array}$$

$$\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$$

$$\begin{array}{r} 8 \\ \times 9 \\ \hline 72 \end{array}$$

$$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$$

$$\begin{array}{r} 7 \\ \times 9 \\ \hline 63 \end{array}$$

$$\begin{array}{r} 4 \\ \times 4 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 8 \\ \times 3 \\ \hline 24 \end{array}$$

$$\begin{array}{r} 5 \\ \times 6 \\ \hline 30 \end{array}$$

$$\begin{array}{r} 8 \\ \times 5 \\ \hline 40 \end{array}$$

$$\begin{array}{r} 6 \\ \div 3 \\ \hline \end{array}$$

$$\begin{array}{r} 32 \\ \div 4 \\ \hline \end{array}$$

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$$\begin{array}{r} 64 \\ \div 8 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \\ \div 6 \\ \hline \end{array}$$

$$\begin{array}{r} 45 \\ \div 5 \\ \hline \end{array}$$

$$\begin{array}{r} 49 \\ \div 7 \\ \hline \end{array}$$

$$\begin{array}{r} 48 \\ \div 8 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ \div 5 \\ \hline \end{array}$$

$$\begin{array}{r} 56 \\ \div 8 \\ \hline \end{array}$$

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$$\begin{array}{r} 35 \\ \div 7 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \div 5 \\ \hline \end{array}$$

$$\begin{array}{r} 54 \\ \div 6 \\ \hline \end{array}$$

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$$\begin{array}{r} 21 \\ \div 3 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ \div 4 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \\ \div 2 \\ \hline \end{array}$$

$$\begin{array}{r} 20 \\ \div 4 \\ \hline \end{array}$$

$$\begin{array}{r} 42 \\ \div 7 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \div 2 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ \div 4 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ \div 3 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ \div 6 \\ \hline \end{array}$$

$$\begin{array}{r} 72 \\ \div 9 \\ \hline \end{array}$$

$$\begin{array}{r} 25 \\ \div 5 \\ \hline \end{array}$$

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$$\begin{array}{r} 81 \\ \div 9 \\ \hline \end{array}$$

$$\begin{array}{r} 63 \\ \div 9 \\ \hline \end{array}$$

$$\begin{array}{r} 16 \\ \div 4 \\ \hline \end{array}$$

$$\begin{array}{r} 24 \\ \div 3 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ \div 6 \\ \hline \end{array}$$

$$\begin{array}{r} 40 \\ \div 5 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \div 3 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 32 \\ \div 4 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 18 \\ \div 9 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 14 \\ \div 2 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 64 \\ \div 8 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 24 \\ \div 6 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 45 \\ \div 5 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 49 \\ \div 7 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 48 \\ \div 8 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 15 \\ \div 5 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 56 \\ \div 8 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 28 \\ \div 7 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 35 \\ \div 7 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 10 \\ \div 5 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 54 \\ \div 6 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 27 \\ \div 9 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 9 \\ \div 3 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 21 \\ \div 3 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 12 \\ \div 4 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 16 \\ \div 2 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 20 \\ \div 4 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 42 \\ \div 7 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 8 \\ \div 2 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 36 \\ \div 4 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 18 \\ \div 3 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 36 \\ \div 6 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 72 \\ \div 9 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 25 \\ \div 5 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 12 \\ \div 2 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 81 \\ \div 9 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 63 \\ \div 9 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 16 \\ \div 4 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 24 \\ \div 3 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 30 \\ \div 6 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 40 \\ \div 5 \\ \hline 8 \end{array}$$

Name _____

Section _____

$2^2 =$

$2^3 =$

$2^4 =$

$2^5 =$

$3^2 =$

$3^3 =$

$3^4 =$

$3^5 =$

$4^2 =$

$4^3 =$

$4^4 =$

$4^5 =$

$5^2 =$

$5^3 =$

$5^4 =$

$5^5 =$

$6^2 =$

$6^3 =$

$7^2 =$

$7^3 =$

$8^2 =$

$8^3 =$

$9^2 =$

$9^3 =$

$10^2 =$

$10^3 =$

$11^2 =$

$12^2 =$

$13^2 =$

$14^2 =$

$15^2 =$

$16^2 =$

$17^2 =$

$18^2 =$

$19^2 =$

$20^2 =$

Name _____

Section _____

$2^2 = 4$

$2^3 = 8$

$2^4 = 16$

$2^5 = 32$

$3^2 = 9$

$3^3 = 27$

$3^4 = 81$

$3^5 = 243$

$4^2 = 16$

$4^3 = 64$

$4^4 = 256$

$4^5 = 1024$

$5^2 = 25$

$5^3 = 125$

$5^4 = 625$

$5^5 = 3125$

$6^2 = 36$

$6^3 = 216$

$7^2 = 49$

$7^3 = 343$

$8^2 = 64$

$8^3 = 512$

$9^2 = 81$

$9^3 = 729$

$10^2 = 100$

$10^3 = 1000$

$11^2 = 121$

$12^2 = 144$

$13^2 = 169$

$14^2 = 196$

$15^2 = 225$

$16^2 = 256$

$17^2 = 289$

$18^2 = 324$

$19^2 = 361$

$20^2 = 400$

Week 5 - Monday, 4/27
Pre-Algebra 11.1, pg. 398 Class Exercises, #1-12

1. $4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$

2. $3! = 3 \cdot 2 \cdot 1 = 6$

3. $2! = 2 \cdot 1 = 2$

4. $1! = 1$

5. ${}_5P_5 = 5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 120$

6. ${}_3P_3 = 3! = 3 \cdot 2 \cdot 1 = 6$

7. ${}_5P_4 = 5 \cdot 4 \cdot 3 \cdot 2 = 120$

↑ Go 4 places

Start with 5

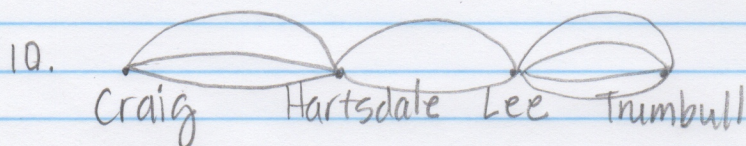
8. ${}_6P_3 = 6 \cdot 5 \cdot 4 = 120$

↑ Go 3 places

Start with 6

9. 3 different boxes
4 different wrapping papers

$3 \cdot 4 = 12$



$3 \cdot 2 \cdot 1 = 24 \text{ routes}$

11. CAR $3 \cdot 2 \cdot 1 = 6$

12. 4 cards, 3 at a time = ${}_4P_3 = 4 \cdot 3 \cdot 2 = 24$

Week 5 - Tuesday, 4/28

Pre-Algebra, 11.1, pp. 398-399, Written Exercises, #1-12 all

1. Ames \rightarrow Carthage \rightarrow Plainview
 $2 \cdot 2 \cdot 3 = \boxed{12}$

2. Carthage \rightarrow Plainview \rightarrow Dutton
 $3 \cdot 2 = \boxed{6}$

3. Carthage \rightarrow Plainview \rightarrow Dutton \rightarrow Weston
 $3 \cdot 2 \cdot 4 = \boxed{24}$

4. Ames \rightarrow Carthage \rightarrow Plainview \rightarrow Dutton
 $2 \cdot 3 \cdot 2 = \boxed{12}$

5. 3 styles \cdot 7 colors \cdot 2 sizes
 $3 \cdot 7 \cdot 2 = \boxed{42}$

6. 3 breads \cdot 2 cheeses \cdot 3 meats
 $3 \cdot 2 \cdot 3 = \boxed{18}$

7. ${}_4P_4 = 4! = 4 \cdot 3 \cdot 2 \cdot 1 = \boxed{24}$

8. ${}_3P_3 = 3! = 3 \cdot 2 \cdot 1 = \boxed{6}$

9. ${}_4P_2 = 4 \cdot 3 = \boxed{12}$

\curvearrowright 4 digits taken 2 at a time

10. ${}_4P_3 = 4 \cdot 3 \cdot 2 = \boxed{24}$

\curvearrowright 4 letters taken 3 at a time

11. ${}_7P_7 = 7! = 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = \boxed{5040}$

12. ${}_6P_6 = 6! = 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = \boxed{720}$

Week 5 - Wednesday, 4/29

Pre-Algebra, 11-2, pg. 402, Class Exercises, #1-10 all

$$1. {}_5C_3 = \frac{{}_5P_3}{{}_3P_3} = \frac{5 \cdot 4 \cdot 3}{3 \cdot 2 \cdot 1} =$$
$$= \frac{5 \cdot 4 \cdot 3}{3 \cdot 2 \cdot 1} = \frac{10}{1} = \boxed{10}$$

$$8. {}_{20}C_2 = \frac{{}_{20}P_2}{{}_2P_2} = \frac{20 \cdot 19}{2 \cdot 1} =$$
$$= \frac{10 \cdot 20 \cdot 19}{2 \cdot 1} = 10 \cdot 19 = \boxed{190}$$

$$2. {}_5C_4 = \frac{{}_5P_4}{{}_4P_4} = \frac{5 \cdot 4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1} =$$
$$= \frac{5 \cdot 4 \cdot 3 \cdot 2}{4 \cdot 3 \cdot 2 \cdot 1} = \frac{5}{1} = \boxed{5}$$

$$9. {}_4C_2 = \frac{{}_4P_2}{{}_2P_2} = \frac{4 \cdot 3}{2 \cdot 1} = \frac{12}{2} = \boxed{6}$$

$$10. {}_5C_3 = \frac{{}_5P_3}{{}_3P_3} = \frac{5 \cdot 4 \cdot 3}{3 \cdot 2 \cdot 1} =$$

$$3. {}_6C_2 = \frac{{}_6P_2}{{}_2P_2} = \frac{6 \cdot 5}{2 \cdot 1} = \frac{30}{2} = \boxed{15}$$

$$= \frac{5 \cdot 4 \cdot 3}{3 \cdot 2 \cdot 1} = \frac{10}{1} = \boxed{10}$$

$$4. {}_7C_2 = \frac{{}_7P_2}{{}_2P_2} = \frac{7 \cdot 6}{2 \cdot 1} = \frac{42}{2} = \boxed{21}$$

$$5. {}_8C_4 = \frac{{}_8P_4}{{}_4P_4} = \frac{8 \cdot 7 \cdot 6 \cdot 5}{4 \cdot 3 \cdot 2 \cdot 1} =$$
$$= \frac{8 \cdot 7 \cdot 6 \cdot 5}{4 \cdot 3 \cdot 2 \cdot 1} = 7 \cdot 2 \cdot 5 = \boxed{70}$$

$$6. {}_8C_6 = \frac{{}_8P_6}{{}_6P_6} = \frac{8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3}{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} =$$
$$= \frac{8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3}{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} = 4 \cdot 7 = \boxed{28}$$

$$7. {}_{12}C_3 = \frac{{}_{12}P_3}{{}_3P_3} = \frac{12 \cdot 11 \cdot 10}{3 \cdot 2 \cdot 1} =$$

$$= \frac{4 \cdot 12 \cdot 11 \cdot 10}{3 \cdot 2 \cdot 1} = 4 \cdot 11 \cdot 5 = \boxed{220}$$

Week 5 - Thursday, 4/30

Pre-Algebra, HW 11-2, pp. 402-403, Problems, # 2-12, evens.

$$2. {}_6C_3 = \frac{{}_6P_3}{3P_3} = \frac{6 \cdot 5 \cdot 4}{3 \cdot 2 \cdot 1}$$
$$= \frac{6 \cdot 5 \cdot 4}{3 \cdot 2 \cdot 1} = 2 \cdot 5 \cdot 2 = \boxed{20}$$

$$12. \text{Center: } {}_3C_1 = \frac{{}_3P_1}{1P_1} = \frac{3}{1} = \boxed{3}$$

$$\text{Guard: } {}_6C_2 = \frac{{}_6P_2}{2P_2} = \frac{6 \cdot 5}{2 \cdot 1} = \frac{30}{2} = \boxed{15}$$

$$4. {}_7C_4 = \frac{{}_7P_4}{4P_4} = \frac{7 \cdot 6 \cdot 5 \cdot 4}{4 \cdot 3 \cdot 2 \cdot 1}$$
$$= \frac{7 \cdot 6 \cdot 5 \cdot 4}{4 \cdot 3 \cdot 2 \cdot 1} = \frac{7 \cdot 5}{1} = \boxed{35}$$

$$\text{Forward: } {}_8C_2 = \frac{{}_8P_2}{2P_2} = \frac{8 \cdot 7}{2 \cdot 1}$$

$$= \frac{8 \cdot 7}{2 \cdot 1} = \frac{4 \cdot 7}{1} = \boxed{28}$$

$$6. {}_{14}C_3 = \frac{{}_{14}P_3}{3P_3} = \frac{14 \cdot 13 \cdot 12}{3 \cdot 2 \cdot 1}$$
$$= \frac{14 \cdot 13 \cdot 12}{3 \cdot 2 \cdot 1} = 7 \cdot 13 \cdot 2 = \boxed{364}$$

$$\text{Center} \cdot \text{Guard} \cdot \text{Forward}$$
$$3 \cdot 15 \cdot 28 = \boxed{1260}$$

$$8. {}_{800}C_2 = \frac{{}_{800}P_2}{2P_2} = \frac{800 \cdot 799}{2 \cdot 1}$$
$$= \frac{800 \cdot 799}{2 \cdot 1} = 400 \cdot 799 = \boxed{319,600}$$

$$10. a. {}_3C_1 = \frac{{}_3P_1}{1P_1} = \frac{3}{1} = \boxed{3}$$

$$b. {}_3C_2 = \frac{{}_3P_2}{2P_2} = \frac{3 \cdot 2 \cdot 1}{2 \cdot 1} = \boxed{3}$$

$$c. {}_3C_3 = \frac{{}_3P_3}{3P_3} = \frac{3 \cdot 2 \cdot 1}{3 \cdot 2 \cdot 1} = \boxed{1}$$

d. 1 book = 3

2 books = 3

3 books = 1

$$\boxed{7}$$

Week 5 - Friday, May 1st

Pre-Algebra, HW 11-3, pg. 406, Class Exercises, 1-12, all

2 red + 1 white + 3 blue = 6 total

$$1. P(\text{red}) = \frac{2}{6} = \frac{1}{3} \quad \begin{array}{l} \text{\# red} \\ \text{\# total} \end{array}$$

$$2. P(\text{white}) = \frac{1}{6} \quad \begin{array}{l} \text{\# white} \\ \text{\# total} \end{array}$$

$$3. P(\text{blue}) = \frac{3}{6} = \frac{1}{2}$$

$$4. P(\text{green}) = \frac{0}{6} = 0$$

$$5. P(\text{not green}) = \frac{6}{6} = 1$$

$$6. P(\text{red or white}) = \frac{3}{6} = \frac{1}{2}$$

$$7. P(\text{white or blue}) = \frac{4}{6} = \frac{2}{3}$$

$$8. P(\text{red or blue}) = \frac{5}{6}$$

$$9. P(\text{\# with a factor of 6}):$$

Factors of 6: 1, 2, 3, 6

$$\frac{\text{Favorable outcomes}}{\text{Possible outcomes}} = \frac{4}{6} = \frac{2}{3}$$

$$10. P(\text{\# w/ a multiple of 3}):$$

Multiples of 3: 3, 6

$$\frac{\text{Favorable}}{\text{Possible}} = \frac{2}{6} = \frac{1}{3}$$

$$11. P(\text{even \# or blue}):$$

even #'s: 2, 4, 6

blue: 2, 5

both: 2, 4, 5, 6

$$\frac{\text{Favorable}}{\text{Possible}} = \frac{4}{6} = \frac{2}{3}$$

$$12. P(\text{even \# AND blue}):$$

even \# & blue: 2

$$\frac{\text{Favorable}}{\text{Possible}} = \frac{1}{6}$$