SETON SCHOOL
SUMMER MATH REFRESHER PROGRAM

GENERAL MATH REVIEW

Many studies have shown that, during the summer, students lose a substantial portion of their math skills acquired over the course of a school year. This puts them at a disadvantage upon returning for a new school year, as the expectations of a new course presuppose the skills and knowledge taught in the previous course.

The Seton math department, in cooperation with the administration, has a program similar to the summer reading program for English. Our hope is that this program will help students transition out of the summer recess and into their new math courses smoothly and with less stress.

We recommend that the sessions be worked gradually over several weeks, perhaps one session done in a day, and two or three days a week. There are ten sessions, each one of which should take about a half hour, though the times will undoubtedly vary among students.

As with summer reading, the work is expected to be done before the new school year starts. You are responsible for keeping your papers and having them ready to turn in the first day. The summer work will count for approximately 5% of your first quarter grade in the next math course. (For this review, that is usually Pre-Algebra.)

IMPORTANT: It is essential that you show all your work, and that it is organized and legible. Space has been provided for you to work directly on the packet, but you may attach extra loose leaf pages if necessary. You must fill in the answer boxes for each question. Put your name clearly on each page of work. If these conditions are not met, you will not get full credit for your work. Also, I strongly suggest that you scan or copy your papers, so that if you lose your originals, you will have a backup.

GENERAL MATH HELP PAGE

Distributive Property

$a(b+c)=ab+ac$, and $a(b-c)=ab-ac$

Example: Simplify. $9x+3(5-2x)$

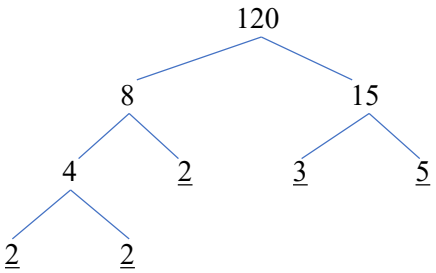
Answer: $9x+3(5-2x)$

$=9x+15-6x$

$=\boxed{3x+15}$

Prime Factorization

Example: Write the prime factorization of 120.



Answer: $\boxed{120=2^3\cdot 3\cdot 5}$

Greatest Common Factor (GCF) = Product of *lowest* exponent of *common* prime factors

Least Common Multiple (LCM) = Product of *highest* exponent of *all* prime factors

Circle Formulas

$C=\pi d,\quad C=2\pi r,\quad A=\pi r^2,$

where C = circumference, r = radius, d = diameter, and A = area.

Properties of Exponents

Given $a\neq 0$ and $m,n>0$:

Product Rule: $a^m\cdot a^n=a^{m+n}$

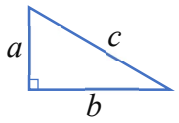
Quotient Rule: $\dfrac{a^m}{a^n}=a^{m-n}$

Zero Exponent Rule: $a^0=1$

Negative Exponent Rule: $a^{-m}=\dfrac{1}{a^m}$

Pythagorean Theorem Formula

$a^2+b^2=c^2$



where a and b are the length of the legs and c is the hypotenuse of a right triangle

Linear Equations

Slope-Intercept Form: $y=mx+b$, where m = slope; b = y-intercept

Vertical Line: $x=$ constant

Horizontal Line: $y=$ constant

Triangle Properties

Area: $A=\dfrac{1}{2}bh$, where b = base and h = height perpendicular to base

Perimeter: $P=a+b+c$, where a, b, and c are the side lengths

Sum of angles: $180°$

GENERAL MATH REVIEW SESSION 1

Evaluate. (1-5)

1. 4^3

2. $(-3)^4$

3. $4.1 + 7.93 + 2$

4. $4.976 - 2.08$

5. $63 \div 3^2 \cdot 2 + 6$

6. Arrange the numbers from least to greatest.
   $3.825,\ 5.1,\ 7,\ 3.83$

7. Convert each to an improper fraction.
   a. $3\frac{3}{10}$ **b.** $5\frac{3}{5}$

8. Convert each to a mixed number.
   a. $\frac{47}{8}$ **b.** $\frac{23}{3}$

9. Convert to a simplified fraction.
   0.275

10. Convert to a simplified mixed number.
    12.28

1.
2.
3.
4.
5.
6.
7.a. 7.b.
8.a. 8.b.
9.
10.

GENERAL MATH REVIEW SESSION 2

Add, subtract, multiply, or divide the integers. (1 – 4)

1. **a.** $(-12)+(-37)$ **b.** $6+(-13)+(-2)$

2. **a.** $-15-6$ **b.** $26-(-31)$

3. **a.** $(-8)(15)$ **b.** $(-2)(-4)(-5)$

4. **a.** $(-56)\div 7$ **b.** $(-240)\div(-12)$

5. Multiply. Round answer to the hundredth.
$(7.17)(2.9)$

Use a factor tree to write the prime factorization. (6 and 7)

6. 56

7. 154

Evaluate. (8 – 10)

8. $8\overline{)547}$

9. $5\div\frac{3}{4}$

10. $0.912\div 2.4$

1.a.
1.b.
2.a.
2.b.
3.a.
3.b.
4.a.
4.b.
5.
6.
7.
8.
9.
10.

GENERAL MATH REVIEW SESSION 3

1. Find the mean, median, mode, and range of the following data set.
   12, 3, 7, 15, 9, 7, 13, 11, 7, 12

   1. Mean:
      Median:
      Mode:
      Range:

2. What number is 25% of 140?

   2.

3. 35 is 120% of what number?

   3.

4. Write the following decimals as percents.
   a. 0.15 **b.** 2.5

   4.a.
   4.b.

5. 9 is 5% of what number?

   5.

6. Write each percent as a decimal.
   a. 75% **b.** 31.9%

   6.a.
   6.b.

7. Find the perimeter of the rectangle below.

   13 cm
   6 cm

   7.

8. Find the area of the rectangle above.

   8.

9. Solve and graph on a number line the following inequality.
   $\frac{r}{7} < 2$

   9.

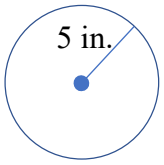
10. Solve the proportion.
    $\frac{8}{30} = \frac{n}{45}$

    10.

GENERAL MATH REVIEW SESSION 4

1. Write as a unit rate.
   220 meters in 50 seconds

2. Find **a)** the circumference and **b)** the area of the following circle. (Use $\pi = 3.14$.)



Evaluate. Simplify each answer. (3 – 6)

3. $\frac{1}{2}+\frac{3}{8}$

4. $7-2\frac{5}{7}$

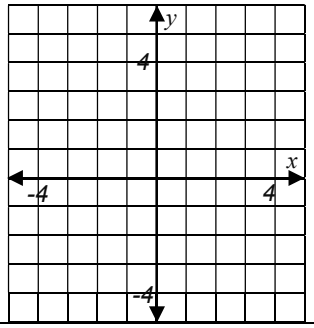
5. $\frac{4}{7}\cdot\frac{3}{16}$

6. $\frac{7}{10}\div\frac{3}{8}$

7. Express as a simplified fraction. 37.5%

8. Solve. $\frac{3.2}{k}=\frac{4}{15}$

9. Plot and label the following points on the xy-plane.
   a. (-2, 4) **b.** (0, 5) **c.** (3, 1) **d.** (2, -3)



10. Evaluate the expression below at the values $x = 2,\ y = -3$.
    $5x + 6y$

1.	
2.a.	
2.b.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

GENERAL MATH REVIEW SESSION 5

1. Round to the nearest hundredth. 314.7583	1.
2. Find the least common multiple of 60 and 84.	2.
3. Find the greatest common factor of 140 and 225.	3.
4. Find the difference. $\frac{7}{8} - \frac{3}{20}$	4.
5. Write as a mixed number. $\frac{74}{15}$	5.
6. Antonia makes and sells baskets. She spends \$0.45 on materials to make each basket, and she sells the baskets for \$7.95 each. How many baskets does she have to sell to make a profit of \$275.00?	6.
7. Mary and Xavier, members of Students Helping Homeless, are making food bundles from 240 sandwiches and 300 soup packets. If every bundle will have the same number of sandwiches and the same number of soup packets, and if all the food will be used for the bundles, what is the greatest number of bundles the two students can assemble? (Hint: Find GCF.)	7.
8. How many sandwiches and how many soup packets will each bundle in the preceding problem contain?	8.
9. Find the quotient. $\frac{8}{9} \div \frac{2}{5}$	9.
10. What is the value of $6.1g$ when $g = 3.3$?	10.

GENERAL MATH REVIEW SESSION 6

1. Evaluate and write as a simplified mixed number.

$$2\frac{1}{2}\cdot 3\frac{1}{3}$$

1.

2. Which is the greatest weight?

a. 1200 pounds b. ½ ton c. 18,000 ounces

2.

3. Find the difference. Write as a simplified mixed number.

$$7\frac{7}{8}-3\frac{9}{10}$$

3.

4. $-21-(-13)$

4.

5. $4.5\overline{)540}$

5.

6. *The favorite colors of students from Mrs. White's math class are listed in the table below.*

Color	Number of Students
Green	5
Orange	1
Blue	11
Red	8
Purple	5

a. What fraction of the students prefers red?

6.a.

b. What fraction prefers either green or purple?

6.b.

c. What fraction does NOT prefer either orange or blue?

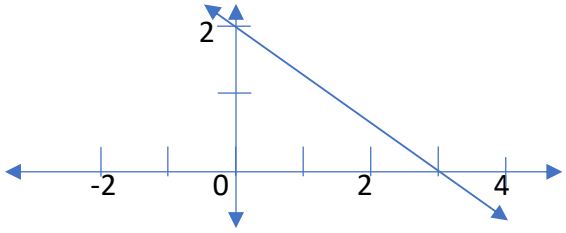
6.c.

7. Simplify. $7d-3+(-14)-13d$

7.

GENERAL MATH REVIEW SESSION 6 (CONTINUED)

8. Which equation could be the equation for the line graphed?



a. $y = -2x + 3$
b. $y = -\frac{2}{3}x + 2$
c. $y = 1.5x + 3$
d. $y = 3x + 2$

8.

9. Express as a simplified fraction. $33\frac{1}{3}\%$

9.

10. Gabe's weekly income increased from $\$80$ to $\$90$ over the past year. What is the percent increase in his income?

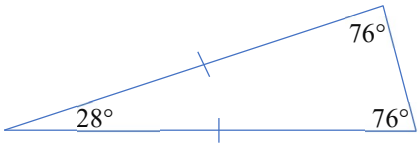
10.

GENERAL MATH REVIEW SESSION 7

1. Add. $\frac{3}{8} + \frac{1}{7}$

1.

2. Classify the triangle below **a)** by its angles (right, acute, or obtuse) and **b)** by its sides (isosceles, equilateral, or scalene).



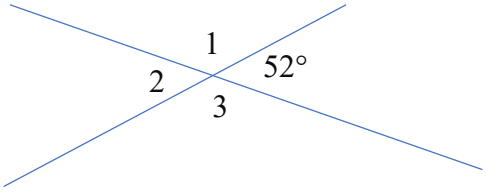
2.a.

2.b.

3. Which of the following is NOT a regular polygon.
   a. square b. trapezoid c. equilateral triangle

3.

4. Find the unknown angle measures.



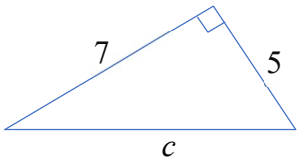
4. $m\angle 1 =$

$m\angle 2 =$

$m\angle 3 =$

GENERAL MATH REVIEW SESSION 7 (Continued)

5. Use the Pythagorean Theorem to find the missing side length. Leave answer in radical form.



5.

6. $6.8\overline{)0.2108}$

6.

7. $1\frac{1}{5} \div 2\frac{4}{15}$

7.

8. $\begin{array}{r} 3,294 \\ -\ 1,561 \\ \hline \end{array}$

8.

9. The formula for the volume of a cone is $V = \frac{1}{3}\pi r^2 h$. Find the volume of a cone with dimensions $r = 2$ cm and $h = 6$ cm.

9.

10. Multiply. Round answer to the one's place.
$(8.1)(2.83)$

10.

GENERAL MATH REVIEW SESSION 8

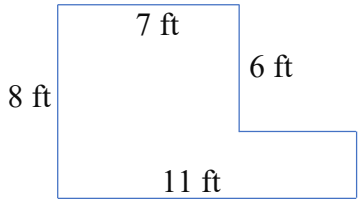
1. How many edges and vertices does a square pyramid have?
   a) 12 edges, 8 vertices
   b) 4 edges, 4 vertices
   c) 10 edges, 6 vertices
   d) 8 edges, 5 vertices

1.

2. What is the sum of the measures of the angles of a triangle.

2.

3. Find the **a)** perimeter and **b)** area of the figure below. All $90°$ angles.



3.a.

3.b.

GENERAL MATH REVIEW SESSION 8 (Continued)

4. Subtract and simplify.

$$\frac{3}{10} - \frac{1}{6}$$

4.

5. Solve. $t + 10 = -1.4$

5.

6. Replace ? with the correct symbol, >, <, or =.

$$\frac{9}{11} \ ? \ \frac{5}{6}$$

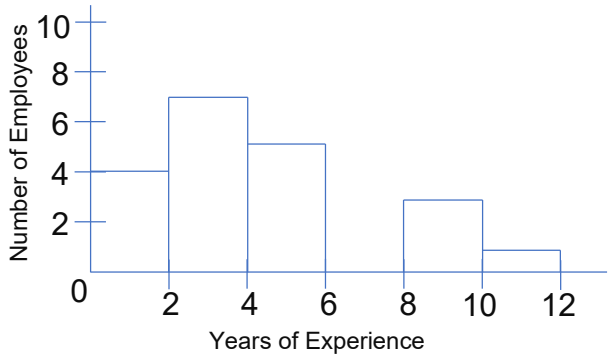
6.

7. Multiply and write as a simplified mixed number.

$$2\frac{1}{4} \cdot 3\frac{1}{6}$$

7.

Use the histogram below for 8 – 10. The graph charts employees of a post office by years of experience.



8. Which span of two years contains the greatest number of employees?

8.

9. During which span of two years is the median number of years of experience?

9.

10. **a)** How many employees work at the post office, according to the histogram?

10.a.

b) What two-year period has no employees?

10.b.

GENERAL MATH REVIEW SESSION 9

1. Write $102{,}300{,}000$ in scientific notation.

2. Find **a)** the area and **b)** the perimeter of a rectangle with width 21 ft and length 34 ft.

3. Find the least common multiple of 24 and 42.

4. Find the greatest common factor of 90 and 165.

5. Two numbers are relatively prime if their GCF is 1. Which of the following number pairs is relatively prime?
   a. $24, 35$ b. $17, 85$
   c. $21, 51$ d. $105, 205$

Evaluate and simplify if possible. (6 – 9)

6. $1.4 \cdot 1.4$

7. $1\frac{1}{2} + 2\frac{3}{4}$

8. $\begin{array}{r} 5.05 \\ \times\ 1.6 \\ \hline \end{array}$

9. $\frac{3}{20} \div \frac{5}{16}$

10. Write as a simplified mixed fraction.
    6.375

1.
2.a. 2.b.
3.
4.
5.
6.
7.
8.
9.
10.

GENERAL MATH REVIEW SESSION 10

1. $3.7 + 0.42 + 12.9 + 1.08$

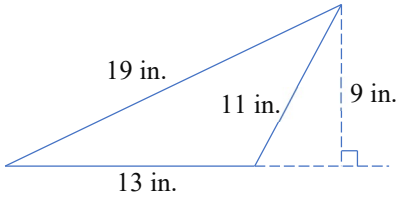
2. $1\frac{1}{3} \div \frac{7}{8}$

3. $23\overline{)4{,}178}$

4. Identify the prime number. $27,\ 37,\ 57,\ 77,\ 87$

5. What number is 28% of 75?

6. Find **a)** the area, and **b)** the perimeter of the triangle below.



7. $4\frac{7}{8} + 3\frac{1}{10}$

8. $2\frac{1}{4} \cdot 3\frac{1}{7}$

9. Rewrite 0.0045 as a percent.

10. Find 125% of 120.

1.
2.
3.
4.
5.
6.a. 6.b.
7.
8.
9.
10.

END OF REVIEW