MTH 111, Exam #1, Part 1, Fall 2020 Name KEY

Instructions: For this portion of the exam, you may use a metric/English conversion chart, and a scientific calculator to find the solutions to the questions. You will then post the answers to those questions in Canvas under Exam #1 Part 1. You may not use other people or notes to complete the exam, and while submitting the exam you will be required to use the Lockdown Browser. After completing this exam, also submit you work and answers for Part 2 in the Part 2 submission folder.

Academic Integrity Statement

I affirm that, I, _____ (student name), do attest that I alone am completing the problems on this test without receiving unauthorized assistance. I understand that violations of academic integrity may result in sanctions, up to and including expulsion from the college.

_____(Student Signature)

_____(Student ID number)

Attach a copy of your photo ID to the online submission (there is a question drop box for it). The ID must be a photo ID. A Driver's license, School ID (NOVA or otherwise), or a work ID are acceptable as long as it contains your full name and photo.

Every answer is worth 5 points.

1. Evaluate each of the following.
   a. $1484 + 471 + 1803 + 3957$

   7715

   b. $2791 - 2177 - (-2552) + (3719)$

   6885

   c. 2697×3193

   8,611,521

   d. $2209 \div 5$ (report your answer in whole + remainder form)

   441 R 4

   e. $\sqrt{875}$ (round your answer to three decimal places)

   29.580

   f. 3.78^4 (round your answer to two decimal places)

   204.16

   g. $\frac{6-8\div2+5^2}{5\times3-8+9}$ $\frac{27}{16}$ or 1.6875

2. A rectangular tank is 9 ft by 6 ft by 4 ft. Gasoline weighs approximately $62\frac{lbs}{ft^2}$. Find the weight of gasoline if the tank is full.

   216 cu ft

   13,392 lbs.

3. If you convert the fraction $6\frac{7}{8}$ to an improper fraction, what is the value if the numerator?

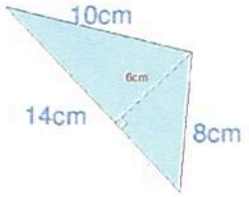
   55

4. What is the common denominator if you add $\frac{1}{5} + \frac{3}{14} + \frac{4}{35}$?

   70

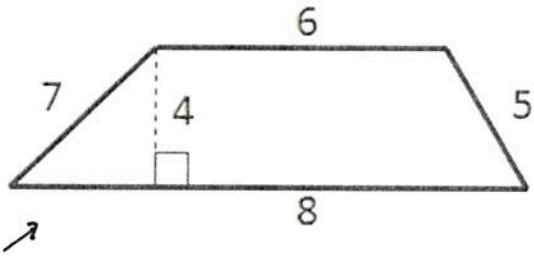
The area of a triangle is given by $A = \frac{1}{2}bh$. The area of a trapezoid is given by $A = \frac{1}{2}(b_1 + b_2)h$. Use these formulas to find the indicated areas.

5.



$\frac{1}{2} \times 6 \times 14 = 42\ cm^2$

6.



$\frac{1}{2}(6+8) * 4 = 28$

7. $12\frac{9}{16} - 3\frac{1}{6} + 2\frac{1}{4}$
   a. What is the common denominator? 48
   b. What is the whole number portion of the solution when written as a mixed numeral? 11
   c. What is numerator of the solution when written as a mixed numeral? 31
   d. What is the numerator when the solution is written as an improper fraction? 559

8. Write the number **One hundred twenty-three and six thousandths** in decimal form.

123.006

9. Round the following values to the indicated number of significant digits:
   a. 627,897 to 5 significant digits 627,900
   b. 0.006174036 to three significant digits 0.00617

10. Write the values in [illegible] in scientific notation with 2 significant digits
    a. 627,897 6.3×10^5
    b. 0.006174036 6.2×10^{-3}

11. Add the following measurements:

6 yd	2 ft 11 in.
2 yd	1 ft 8 in.
5 yd	2 ft 9 in.
1 yd	6 in.

34 in = 2ft 10in ⇒ 14yd 7ft 10in

9ft = 2yd 0ft ⇒ 16yd 1ft 10in

14yd 5ft 34in

Simplify the expression: i.e. if you have more than 12 inches, convert to feet and if you have more than three feet, convert to yards. Use the simplified expression to answer the following:

a. How many whole yards are there? 16
b. How many whole feet are there? (not included in yards) 1
c. How many whole inches are there? (not included in feet) 10

12. Complete the missing values in the table.

	Fraction	Decimal	Percent
a.	$\frac{3}{4}$	0.75	75%
b.	$\frac{2}{25}$	0.08	8%
c.	$\frac{3}{500}$	.006	0.6%

13. What percent of 7.15 is 3.5? Report your answer as a percent. round to one ~~decimal~~ tenth as needed of a percent

49.0%

14. Simplify the expression $\left(\frac{10^{-7}10^{-2}}{10^{9}}\right)^{-3}$. What is the resulting power of 10?

54

15. Which of the following measures is the largest unit? Which is the smallest?
a. Kilometer largest
b. Decimeter
c. Micrometer
d. Nanometer Smallest

16. If you are converting mm^2 to cm^2, which of the following is the appropriate procedure?
a. Multiply mm^2 by 10
b. Multiply mm^2 by 100
c. Divide mm^2 by 10
d. Divide mm^2 by 100

17. The surface temperature of Venus is approximately 425°C. What is the equivalent temperature in Fahrenheit?

797

18. How many m^2 are in 15 yd^2? Round your answer to two decimal places if needed.

1 yd = 0.91 m ⇒ 12.42 m^2

19. For the measured value 0.188, find:
    a. The precision 0.001
    b. The greatest possible error 0.0005
    c. The relative percent error (round to the hundredths of a percent)

0.27 %

20. Solve the proportion $\frac{5}{7} = \frac{4}{y}$ for y.

$5y = 28$

$y = 5.6$

21. Metal duct that is 6 in. in diameter costs $7.50 for 5 ft. If 16.5 ft are needed for an order, what is the cost? If necessary, round your answer to the nearest penny.

$\frac{7.50}{5} = \frac{x}{16.5}$ $x = 24.75$

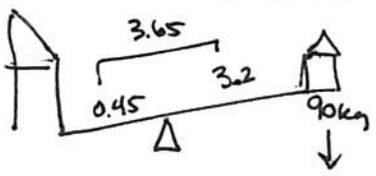
22. Distance and the amount of gasoline used vary directly when driving at a constant speed. Zachary driving at a constant speed of 65 mi/h travels 45 mi and uses 14.1 gal of gasoline. How much gasoline does he use driving 912 mi traveling at the same speed? Round your answer to one decimal place if needed.

$\frac{45}{14.1} = \frac{912}{x}$ $45x = 285.76$

285.8 gal

is this a good gasmileage or a poor one?

23. A carpenter needs to raise one side of a building with a lever 3.65 m in length. The lever, with one end under the building, is placed on a fulcrum 0.45 m from the building. A mass of 90 kg pulls down on the other end. What mass is being lifted when the building begins to rise? Round your answer to a whole number as needed.

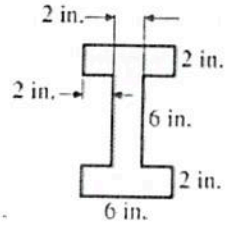


$X(0.45) = 90 \times 3.2$

$0.45x = 288$ $\rightarrow x = 640$ kg

Every answer is worth 5 points. The work shown is worth 10 points.

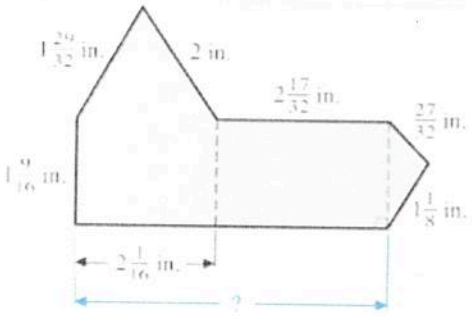
1. Find the area of the figure:



$2\times6 + 2\times6 + 2\times6 =$

$12+12+12 = 36\ in^2$

2. Find the area of the figure:



$2\frac{1}{16} + 2\frac{17}{32} =$

$2\frac{2}{32} + 2\frac{17}{32} =$

$4\frac{19}{32}$

3. Evaluate $\frac{2}{5} \times 3\frac{2}{3} \div \frac{3}{4}$

$$\frac{2}{5} \times \frac{11}{3} \times \frac{4}{3} = \frac{88}{45}$$

4. Reduce $\frac{18\frac{1}{2}}{2\frac{1}{4}}$ to lowest terms.

$$\frac{\frac{37}{2}}{\frac{9}{4}} = \frac{37}{\cancel{2}} \times \frac{\cancel{4}^{2}}{9} = \frac{74}{9}$$