

ARE YOU READY FOR MATH O20?

On a separate piece of paper, complete as many problems as you can without asking a friend for help. You may use a calculator to check your answers and you may look in math books. Attach your paper to the back of this problem sheet. If you get stuck on a problem, include a note on your paper that tells me what got you “stuck”; such as, what you need to know to finish the problem, or if there is confusion in the wording of the problem, or it is an operation you are not familiar with, etc. **Show all your work. Include the number of the problem and circle your final answer.**

1. Write the prime factorization of 144. (What prime numbers all multiplied together equal 144?)

2. Determine the sum of the fractions: $\frac{3}{8} + \frac{1}{6}$?

3. Solve for the value of x : $32 + x = 61$

4. A jar contains 128 oz of juice. How many 6-oz glasses can be filled from the jar? _____

Are there any ounces left over, if so, how many? _____

What fraction of a 6-oz glass of juice is left over? _____

5. Multiply the two fractions. Make sure answer is in simplest form. $\left(\frac{8}{9}\right)\left(\frac{3}{5}\right)$

6. Determine the value of $25 - (18 - 3 \bullet 4) - 3^2$?

7. Write the absolute value: $|-4.2|$

8. Find the area and the perimeter of a rectangle with length 3 ft and width 2.5 ft.
Draw and label a diagram.

Area is _____ Perimeter is _____

9. Compute: $27 + 4 \bullet 8 \div 4^2 - (-9 + 4)^2$

10. Solve for the value of x : $2x - 1 = 4x + 5$

11. Simplify: $3 [11 (a - 2) - 2 (3 - a)]$

12. Solve for x ; graph the solution on a number line: $1 - x < 2$

13. Solve for the value of x : $3 (x + 1) = 2 - (x - 2)$

14. Multiply and simplify: $-\left(\frac{5}{6}\right)\left(\frac{2}{15}\right)$

15. Subtract: $(x^2 + 3x - 1) - (2x^2 - 5)$

16. Divide and simplify: $\frac{3x}{2y} \div \frac{4x}{8y}$

17. Factor the polynomial completely: $x^2 + x - 20$

Mathematician _____ Date _____

DO YOU BELONG IN MATH 020 OR ARE YOU OREADY FOR A MORE ADVANCED COURSE?

The following problems are samples of 'what is to come' in this course. On a separate sheet of paper, try to answer the following problems. If you run into difficulty, write where you ran into trouble (for example, directions not clear – be specific; what you need to know to continue to work on the problem, etc.) Attach your work to the back of this problem sheet.

You may belong in a different math class!

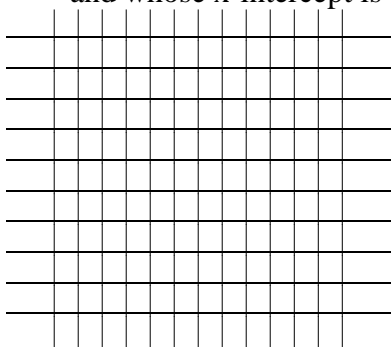
1. Simplify: $9(10x - 2y) - 5(x - 4y + 3)$
2. Simplify: $\frac{30x^3y^4}{6x^9y^{-4}}$
3. Perform the indicated operation, simplify result: $\sqrt{6r}\sqrt{3r}$ and $\sqrt{18} + \sqrt{50}$
4. Factor completely: $x^2 - 9x + 18$
5. Simplify: $\frac{x^2 + 2x - 3}{x^2 - 3x + 2}$
6. Express (without exponents): $27^{-1/3}$ and $8^{2/3}$
7. Find the product: $(5x + 3y)^2$
8. Factor completely: $25x^2 - 9$
9. A student has scores of 4, 10, 5, and 7 on four quizzes. What must he score on the fifth quiz to have an average of 7 or higher? Give the equation used to solve the problem and the answer.
10. One of the two top-selling music albums of all times, *Jagged Little Pill* (Alanis Morissette) sold 5 million more copies than that of *Saturday Night Fever* (BeeGees). Combined, the two albums sold 27 million copies. Determine the number of sales for each of the albums.
11. Perform the operation and simplify if possible: $\frac{2x+8}{x-3} \div \frac{x^2+5x+4}{x^2-9}$

12. Perform the operation and simplify if possible: $\frac{x}{x+3} + \frac{5}{x-3}$

13. Given $f(x) = 5x^3 - 12$, what is $f(2)$?

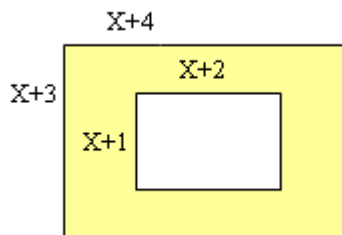
14. Solve, simultaneously, for x and y : $5x - 3y = 1$ and $2x - 3y = -5$

15. Graph the line whose slope is $\frac{2}{3}$ and whose x-intercept is $(3, 0)$.



What is the equation of the line?

16. Write an expression to represent the shaded region of the figure.



What is the value of the shaded region if $x = 1$?

17. Why can we not divide by 0? (That is, explain why $1/0$ doesn't name a number.)