Are You Ready for MATH 20? Concepts from Math 10

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

2. Determine the sum of the fractions: 3/8 + 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: $x^2 + x - 20$

Are You Ready to go Beyond MATH 20? Concepts from Math 20

1. Simplify: $9(10x - 2y) - 5(x - 4y + 3)$

2. Simplify: $\dfrac{30x^3y^4}{6x^9y^{-4}}$

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: $\dfrac{x^2 + 2x - 3}{x^2 - 3x + 2}$

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.

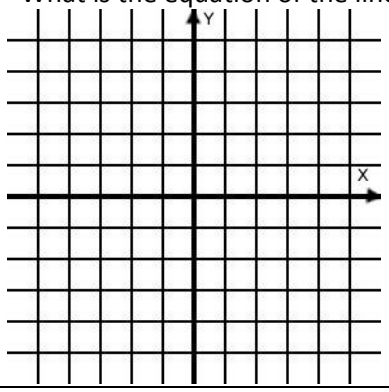
11. Perform the operation and simplify if possible: $\dfrac{2x+8}{x-3} \div \dfrac{x^2+5x+4}{x^2-9}$

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

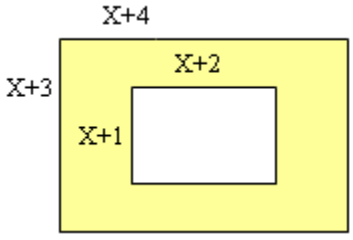
13. Given $f(x) = 5x^3 - 12$, what is $f(2)$?

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

15. Graph the line whose slope is 2/3 and whose x-intercept is (3, 0).
What is the equation of the line?

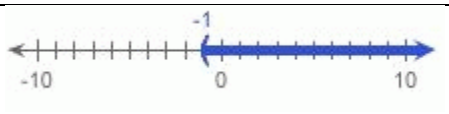
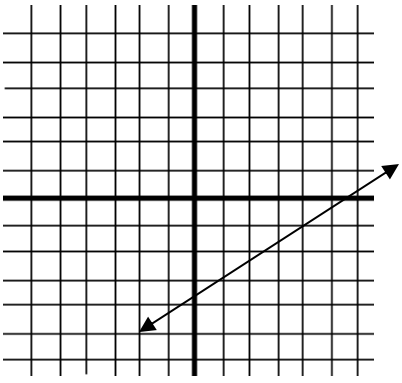


16. Write an expression to represents the shaded region of the figure.



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.)

Are you READY for MATH 20?	Should you be placed beyond MATH 20?
1. $144 = 2 \bullet 2 \bullet 2 \bullet 2 \bullet 3 \bullet 3 = 2^4 3^2$	1. $85x + 2y - 15$
2. $\frac{13}{24}$	2. $\frac{5y^8}{x^6}$
3. $x = 29$	3. $3r\sqrt{2}$ and $8\sqrt{2}$
4. 21 6-oz glasses. 2 ounces left, 1/3 glass	4. $(x-6)(x-3)$
5. $\frac{8}{15}$	5. $\frac{x+3}{x-2}$
6. 10	6. $\frac{1}{3}$ and 4
7. 4.2	7. $25x^2 + 30xy + 9y^2$
8. Area=7.5 sq. ft. Perimeter = 11 ft.	8. $(5x-3)(5x+3)$
9. 4	9. $\frac{4+10+5+7+x}{5} \geq 7, \quad x \geq 9$
10. $x = -3$	10. 11 million SNF, 16 million JLP
11. $39a - 84$	11. $\frac{2(x+3)}{x+1}$
12. 	12. $\frac{x^2 + 2x + 15}{(x+3)(x-3)}$
13. $x = \frac{1}{4}$	13. 28
14. $-\frac{1}{9}$	14. x=2, y=3, so the answer is (2,3)
15. $-x^2 + 3x + 4$	15.  Equation is: $y = \frac{2}{3}x - 2$
16. 3	16. $(x+4)(x+3) - (x+1)(x+2)$; 14 sq. units
17. $(x-4)(x+5)$	17. (answers will vary) if x/y = z then z*y must = x. If y were 0, then z*0 must be x, but z*0 will always be 0. Also, x/y=z means there are z groups of y inside of x, but one can't name how many groups of "0" are in a number.