

Name: _____

Date: _____

Mat 152A Basic Algebra Final
Sections 1.1 through 4.7, 8.1, 8.2, 11.1, 11.6

1. (4 points) Perform the indicated operations. a) $-\frac{2}{5} + 5$ b) $3\frac{4}{7} \div \frac{5}{21}$

2. (6 points) Evaluate each expression.

a) $\frac{10 - (-6)^2}{-4 - (-2)}$

b) $2 + 3 \cdot |4 - (3^2 - 2^2)|$

3. (3 points) Evaluate the expression using $a = -3$ and $b = -4$.
 $a^2 + 3b - a$

4. (6 points) Simplify the following expressions.

a) $15\left(\frac{w}{3}\right)$

b) $4 + 3(m - 2) - m + 7$

5. (8 points) Solve each equation.

a) $-\frac{1}{3}(x-12) = \frac{3}{4}x$

b) $6 - 5(1 - 2x) + 3 = -3(1 - 2x) - 1$

6. (4 points) If the sum of three consecutive integers is 141, then what are the integers?

7. (4 points) If the perimeter of a tennis court is 228 feet and the length is 6 feet longer than twice the width, then what are the length and width?

8. (4 points) Write the solution set using interval notation and graph it on the number line.

$$1 < \frac{1-2x}{3} < 5$$

9. (4 points) Solve the absolute value equality. $\left|\frac{x}{3}-6\right|=1$

10. (3 points) Graph the line. What is the slope? $y = 2$

11. (4 points) Find the equation of the line passing through the points.
(0, 4) and (3, -6)

12. (4 points) What is the **slope** and the **y-intercept** of the line? **Graph the line.**
 $4x - 2y - 6 = 0$

13. (3 points) Find the equation of the line passing through (1, -5) with slope of -4.

14. (5 points) Bridgette drove her car for 2 hours on an icy road. When the road cleared up, she increased her speed by 35 miles per hour and drove three more hours, completing her 255-mile trip. How fast did she travel on the icy road?

15. (3 points) Subtract. $(3 - 4x - x^2) - (3x^2 - 2x + 5)$

16. (3 points) Find the Domain and Range. $\{(4, 3), (2, 1), (9, 7)\}$

17. (6 points) Multiply. a) $(2y - 5)(7y + 3)$ b) $(2k - 7)^2$

18. (4 points) Multiply. $(4m^2 - 5)(4m^2 + 5)$

19. (4 points) Divide. $x + 2 \overline{)x^2 - 3x - 10}$

20. (4 points) Simplify. $\frac{5x^3(x^5)^2}{15x^5(x^2)^6}$

21. (4 points) Simplify. $\left(\frac{m^{-2}}{3d^3}\right)^{-4}$

22. (4 points) Graph the inequality. $5x - 3y < 6$

23. (8 points) Let $f(x) = 4x - 7$ and $g(x) = x^2 - x$.

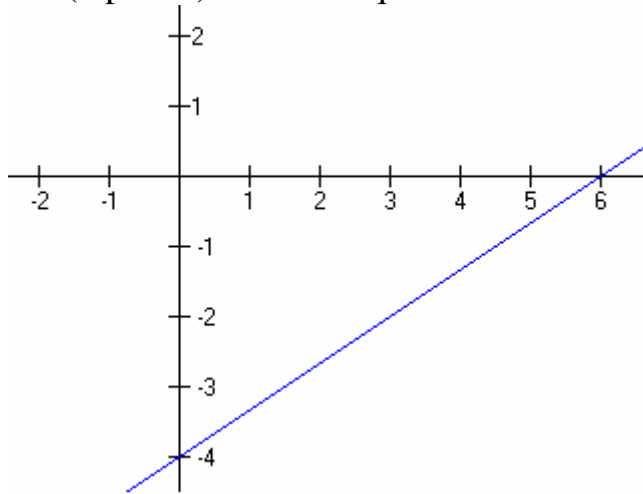
a) Find $\left(\frac{f}{g}\right)(-3)$ b) Find $(f - g)(x)$ c) Find $(f + g)(2)$ d) Find $(fg)(x)$

24. (2 points) Write the number in scientific notation. $.00047$

25. (2 points) Determine whether the set of ordered pairs is a function.
 $\{(1, -3), (2, 12), (1, 3)\}$

26. (4 points) Multiply. $(3x-2)(2x^2+5x-4)$

27. (3 points) Find the equation of the line.



28. (3 points) Simplify. $2^{-1} + 7^{-1}$

29. (3 points) Simplify. $\frac{8x^{-3}}{-2x^{-5}}$

30. (3 points) Simplify. -2^{-4}

Bonus: (2 points possible) Multiply. $(x+2)^3$