

Math-M123/College Algebra
Practice Exam 2/Fall 2009
Sections 6.7, 7.1-7.5, 8.1-8.3

Name _____

No notes are permitted as you take this exam. However, you may use your calculator. Partial credit will be given, but only if appropriate work is shown, so it is to your advantage to show your work.

1. Tory and Emilio's motorboats travel at the same speed. Tory pilots her boat 40 kilometers before docking. Emilio continues for another 2 hours, traveling a total of 100 kilometers before docking. How long did it take Tory to navigate the 40 kilometers?

2. The ratio of the weight of an object on the moon to the weight of an object on Earth is 0.16 to 1. How much would a 180-pound astronaut weigh on the moon?

3. Find the function values.

$$f(x) = 4x^2 - 3x + 1$$

(a) $f(0)$

(b) $f(-7)$

(c) $f(a) + 1$

4. Find the domain of g .

(a) $g(x) = \frac{x+9}{2x-3}$

(b) $g(x) = |3x-1|$

5. In 1983, the record for the 200-meter run was 19.75 seconds. In 2007, it was 19.32 seconds. Let $R(t)$ represent the record in the 200-meter run and t the number of years since 1980.

(a) Find a linear function that represents the data.

(b) Use the function to predict the record in 2015 and in 2027.

6. Let $f(x) = 5x - 12$ and $g(x) = x^2 + 3x$

(a) Find $(f + g)(x)$

(b) Find $(f \cdot g)(x)$

(c) Find $(g/f)(1)$

(d) Find $(g - f)(-2)$

7. Solve for n: $C = \frac{ab}{m + n}$

8. The volume V of a gas is inversely proportional to the pressure p . If a pressure of 36 pounds per square inch corresponds to a volume of 25 cubic feet, what pressure is needed to produce a volume of 100 cubic feet?

9. Solve the system of linear equations graphically.

$$\begin{aligned}y &= 3x - 5 \\5x - y &= 7\end{aligned}$$

10. Solve the system of linear equations using substitution.

$$\begin{aligned}x &= 3y + 4 \\-2x + 5y &= -10\end{aligned}$$

11. Solve the system of linear equations using elimination.

$$5x - 7y = -16$$

$$2x + 8y = 26$$

12. Quick Copy recently charged \$0.49 per page for color copies and \$0.07 per page for black-and-white copies. If Shirlee's bill for 100 copies was \$29.68, how many copies of each type were made?

13. Ana bought two melons and one pineapple for \$8.96. If she had purchased one melon and two pineapples, she would have spent \$10.45. What is the price of a melon? What is the price of a pineapple?