

Pre-Algebra Exam 2

Instructions: Please write your name on every page. All 8 problems are worth an equal number of points. As always, show your work. Partial credit will be given for incorrect answers with relevant work shown. Credit will not be given for correct answers with no work shown. Good luck!

Name:	
Signature:	

Do not mark. For grading purposes only.

Question	Score	Possible
1		10
2		10
3		10
4		10
5		10
6		10
7		10
8		10
Total		80

1. **Express as a decimal:**

(a) $\frac{1}{4}$

(b) three hundredths

Order from smallest to largest:

(c) $\frac{1}{2}$, 0.01, 0.51

(d) $-1.11, -0.11, \frac{2}{5}, 0.45$

Round to the nearest tenth and hundredth:

(e) 1.126

(f) 1.529

2. **Solve:**

(a) $\frac{1}{5}(x + 4) = x - 1$

(b) $-3x + 2 < 20$

3. Simplify, leaving no negative exponents:

(a) $\frac{x^3 y^6 x}{x^2}$

(b) $\frac{a^{-2} b}{a^3 b^2}$

(c) $(4xz^3)^2(2x^{-2}z)^4$

4. For each of the following linear equations, determine the slope and intercept and plot:

(a) $y = 2x + 1$

(b) $y - 3x = 2$

5. **Solve:**

A woman is building a fence for her pumpkin patch. She buys 20 m of fence, and she builds a patch that is two meters longer than it is wide. (*Remember that the perimeter is $P = 2l + 2w$.*)

- (a) Write an equation for the width of the patch.
- (b) Solve for the width of the patch.
- (c) What is the area of the pumpkin patch?

6. Solve:

Amy is biking to the grocery store, which is 10 miles away. It takes her one hour.

- (a) What is Amy's rate (in miles per hour)?
- (b) Make a plot of distance versus time for her journey, if her house is the origin (so that she starts with distance of 0 at time 0).
- (c) If Joe bikes to the supermarket at a rate of 5 miles per hour, and his house is twice as far as Amy's, how long does it take him to get to the supermarket?

7. This problem is a follow-on to problem 6 of the practice test. Here's the problem: Amy lives right in the center of town. Her friend Betty lives 2 miles north and 4 miles east of Amy. Each Saturday night, Amy drives to Betty's house to pick her up and they then drive 2 miles east to pick up Cathy, and then all three drive two miles north to a dance hall. Now suppose that there is an avenue which runs straight from the center of town, where Amy lives, past the dance hall. If, one Saturday, Amy's friends are out of town, so she drives directly to the dance hall without picking them up, how far does she drive?

8. A peeled orange has a diameter of four inches. It has twelve equal-sized segments with no spaces between them. What is the total surface area of the segments when they have been separated? (the total area of a sphere is $4\pi r^2$. Take $\pi = 3$).