

## Pre-Algebra: Exam 2 - Practise

1. **Express as a decimal and as a percentage:**

(a)  $\frac{1}{2}$

(b) twenty-five thousandths

**Order from smallest to largest:**

$\frac{1}{4}$ , 0.001, 0.55

**Round to the nearest tenth and hundredth:**

(c) 5.2935

(d) 3.1234

2. **Solve:**

(a)  $\frac{1}{4}(x + 3) = 2x - 1$

(b)  $-2x < 10$

3. Simplify, leaving no negative exponents:

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

(b)  $(2x^2y^2)^2(x^2y)^{-2}$

4. For each of the following linear equations, determine the slope and intercept. Plot the equation.

(a)  $y = -2x + 1$

(b)  $y - 2x = 2$

5. I am building a ramp. The length of the ramp along the ground is 12 meters and it's 5 meters high and 5 meters wide. I want to paint it with wood preserver all over (including the base) before I install it. If the cost to paint 1 sq meter is \$1, how much is this going to cost me?
6. Amy lives right in the center of town. Her friend Betty lives 2 miles north and 4 miles east of Amy. 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. Plot these four points (A, B, C and D) on a map of the town, and, on the assumption that all the roads in the town run north-south or east-west, draw Amy's path between her house and the dance hall. If Amy can drive at 30 mph, and it takes 5 minutes each to pick up Betty and Cathy, when should she leave home to get to the dance hall by 7 pm?
7. I have a desk which is a rectangle measuring 5 feet by 4 feet. (a) What is the area of my desk? (b) my desk has flaps at either end which can be raised to make its surface area bigger. If each flap is a semi-circle of diameter the same as the small dimension of my desk (4 feet) what is the area of my desk with the flaps raised? (c) I buy a flat-screen TV for my living room. The salesman tells me it's a 17" screen, but when I get home and measure it I find it's a rectangle measuring  $8'' \times 15''$ . Was he lying to me? Explain.
8. The Earth's diameter is roughly 8,000 miles. (a) What is its circumference? (for this problem you can take  $\pi = 3$ ). (b) Suppose the Earth is a perfect sphere and completely flat (no mountains, oceans etc.). I want to lay a fiber-optic cable all the way round the equator, flat on the ground. What length of cable do I need to do this? (c) Instead, I decide to hang the cable from the tops of pylons 100 feet high. If I can make the cable taut, so that it's a circle, how much more cable do I need?
9. A grain silo is built out of sheet aluminum; it is cylindrical with a radius  $r$  and height  $h$ . The silo has a floor and a hemispherical roof of radius  $r$ . Write the formula for the total surface area of the silo, and write it in the simplest form.
10. A washer (a flat disk of metal with a large concentric hole) has an outer radius (the radius of the washer) of  $x$  and an inner radius (the radius of the hole) of  $y$ . Draw the washer, and write in simplest form the area of the washer.