

Review Sheet #3 for final exam – answers (not guaranteed)

Remember that calculators are not allowed on the final exam. You need to be able to do all the arithmetic by hand.

1. Use the rules of exponents to simplify the following. Write your answer using only positive exponents. Assume all variables represent non-zero numbers.

$$(8x^2y^3)(-3xy^2) = (8)(-3)(x^2)(x)(y^3)(y^2) = -24x^3y^5.$$

2. Evaluate $3.5 - 2x$ for $x = -1.9$.

$$3.5 - 2(-1.9) = 3.5 + 3.8 = 7.3.$$

3. Simplify $-\frac{36}{42} = -\frac{6 \cdot 6}{7 \cdot 6} = -\frac{6}{7}$.

4. Use the rules of exponents to simplify the following. Write your answer using only positive exponents. Assume all variables represent non-zero numbers.

$$\frac{60x^7y^0}{15x^2y^9} = \left(\frac{60}{15}\right)\left(\frac{x^7}{x^2}\right)\left(\frac{y^0}{y^9}\right) = 4x^5 \cdot \frac{1}{y^9} = \frac{4x^5}{y^9}.$$

5. What is 25% of 180?

$$(.25)(180) = 45$$

6. Complete the ordered pair (, 5) so that it is a solution of the linear equation $y = 4 - 2x$.

Solve $5 = 4 - 2x$ for x :

$$5 = 4 - 2x$$

$$1 = -2x$$

$$-0.5 = x$$

7. Use the rules of exponents to simplify the following. Write your answer using only positive exponents. Assume all variables represent non-zero numbers.

$$(4x^{-4}y^3)^{-2} = (4)^{-2}(x^{-4})^{-2}(y^3)^{-2} = (4)^{-2}x^8y^{-6} = \frac{x^8}{16y^6}.$$

8. Write in scientific notation: $0.0065 = 6.5 \times 10^{-3}$

9. How many pounds are in 78 kg? (Helpful information: 2.20 pounds = 1 kg.)

First, think about size – a pound is smaller than a kg, so there should be more.

Then remember that the units will tell you what to do:

$$78 \text{ kg} \left(\frac{2.20 \text{ lbs}}{1 \text{ kg}} \right) = (78 \cdot 2.20) \text{ lbs} = 171.6 \text{ pounds.}$$

10. Evaluate $a^2 - 2ab + 2c^2$ for $a = 7$, $b = -2$ and $c = -1$.

$$(7)^2 - 2(7)(-2) + 2(-1)^2 = 49 - (2)(7)(-2) + 2(1) = 49 + 28 + 2 = 79.$$

11. Write as a decimal number: $9.4 \times 10^6 = 9,400,000$

12. What percent of 35 is 28?

This question is asking “How much of 35 is 28, as a percentage?” In other words,

it’s asking you to write the fraction $\frac{28}{35}$ as a percent. $\frac{28}{35} = .8 = 80\%$.

13. How many kg are in 78 pounds? (Helpful information: 2.20 pounds = 1 kg.)

Again, think about size. This time, we expect there to be fewer than 78 kg because kg are larger than pounds. The units tell you:

$$78 \text{ lbs} \left(\frac{1 \text{ kg}}{2.20 \text{ lbs}} \right) = \frac{78}{2.2} \text{ kg} \cong 35.5 \text{ kg.}$$

14. Do the points (2, 5), (3, 7) and (6, 10) lie on a straight line? Plot the points to see.

When you plot these points, you should see that they do not all lie on the same line. If you try to connect these dots, they form a triangle instead.

