Placement Test Review Units 3 - 5

Ratios, Proportions, Percentages, Lines, Exponents and Polynomials

The Math Placement Test Sequence at the College of Western Idaho allows students to test out of Units in the developmental mathematics sequence. The Placement test for Units 3-5 has 15 questions. If you complete a level with a score of 70% or higher, you may attempt the next level in the sequence. You are limited to two attempts per level on the Placement Test. The two attempts must not be on the same day.

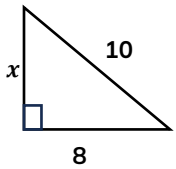
Sample problems (and associated **topics**):

1. Solve $\frac{5}{12} = \frac{y}{30}$ **(Solve a proportion.)**

2. Mary earned $4420 for 13 weeks of summer work. What was her unit rate in dollars per week? **(Find a unit rate.)**

3. A worker can complete the assembly of 16 cell phones in 5 hours. At this rate, how many can the worker complete in a 40-hour workweek? **(Use a proportion in problem solving.)**

4. Find the length of the missing side of the right triangle**. (Use the Pythagorean Theorem.)**



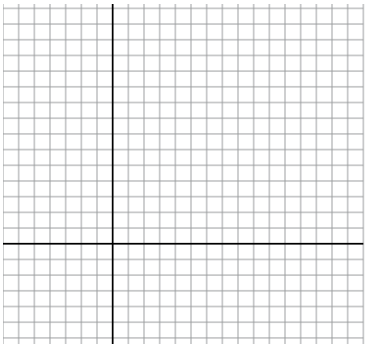
5. What is 35% of 105? **(Solve percent problems.)**

6. A salesperson's commission rate is 5%. What is the commission from the sale of $300 worth of clothing? **(Solve applications involving percent.)**

7. 25.6 is what percent of 80? **(Solve percent problems using proportions.)**

8. 24 rail cars is what percent of 40 rail cars? **(Solve applications involving percent.)**

9. For the equation $y = -\frac{2}{3}x + 4$, complete the ordered pairs (0, ___) and (___, 2), then graph the line. **(Graph a line by completing ordered pairs.)**

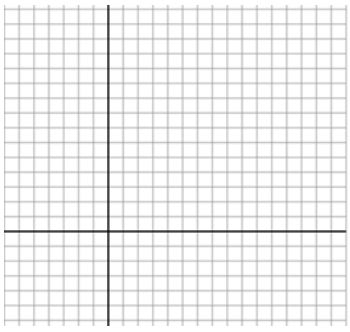


10. Find the intercepts for the graph of the given equation; write the answers as ordered pairs: $2x + 8y = -16$. **(Find intercepts of a given equation.)**

11. Write the equation of the line with slope of -3 and y-intercept (0, 4). **Write the equation of a line given its slope and y-intercept.)**

12. Find the slope, if it exists. $5x - 4y = 16$. **(Find the slope of a given equation.)**

13. Find the slope and y-intercept, then graph the equation: $y = \frac{2}{5}x - 1$. Write the y-intercept as an ordered pair. **(Using the slope and y-intercept of a given equation, graph the line.)**



14. Find the equation of the line through the given pair of points: (4, 5) and (-2, 2). **(Write the equation of the line containing a given pair of points.)**

15. Subtract: $(-7x^2 + 8x - 12) - (x^2 - 5)$. **(Subtract polynomials.)**

16. What is the coefficient and the exponent in the term m^4. **(Determine the degree and coefficient of a monomial.)**

17. Multiply: $(5x - 8)(10x + 4)$. **(Multiply two binomials by using FOIL.)**

18. Multiply: $(x + 4)(x - 4)$. **(Multiply the sum and difference of two terms.)**

19. Multiply: $3x(2x-4)(5x-3)$. **(Multiply two or more polynomials.)**

20. Use the rules of exponents to simplify the expression. **(Use the power-to-power rule and the product-to-power rule.)**

$$(m^3n^2)^3(-m^2n^5)^2$$

21. Use the rules of exponents to simplify the rational expression. **(Use rules of exponents.)**

$$\frac{(ab^5)^{-6}}{a^{10}b^{-5}}$$

22. Use the rules of exponents to simplify the rational expression. **(Use the quotient-to-power rule and the negative power rule.)**

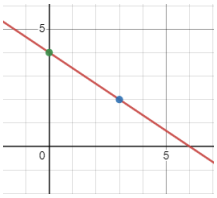
$$\left(\frac{3}{4}\right)^{-3}$$

Placement Test Review Units 3 - 5

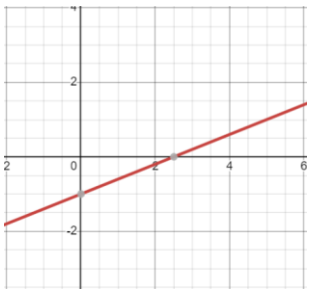
Ratios, Proportions, Percentages, Lines, Exponents and Polynomials

Answers:

1. y = $\frac{25}{2}$ or y = 12.5
2. $340 per week
3. 128 cell phones
4. x = 6
5. 36.75
6. $15
7. 32%
8. 60%
9. (0, 4) and (3, 2)



10. x-intercept (-8, 0), y-intercept (0, -2)
11. y = -3x + 4
12. slope = $\frac{5}{4}$
13. slope = $\frac{2}{5}$, y-intercept (0, -1)



14. $y = \frac{1}{2}x + 3$

15. $-8x^2 + 8x - 7$

16. The coefficient of the term is 1 and the exponent is 4.

17. $50x^2 - 60x - 32$

18. $x^2 - 16$

19. $30x^3 - 78x^2 + 36x$

20. $m^{13}n^{16}$

21. $\frac{1}{a^{16}b^{25}}$

22. $\frac{64}{27}$

Some websites to help you practice are:

IXL https://www.ixl.com/math/algebra-1

S.O.S Math http://www.sosmath.com/algebra/algebra.html

Khan Academy https://www.khanacademy.org/math/algebra?t=practice

Purplemath http://www.purplemath.com/