Diagnostic Review – Units 3, 4

The Math Diagnostic Sequence at the College of Western Idaho involves testing out of Units for Math 095. The diagnostic tests have between 10 and 20 questions. If you complete a test with a passing score you can attempt the next test in the sequence.

Units 3, 4 – Ratios, Unit Rates, Proportions, Slopes, Lines and Graphs

Topics and Examples

1. Topic: Find a unit rate

   - Example: Mary earned $4420 for 13 weeks of summer work. What was her unit rate in dollars per week?
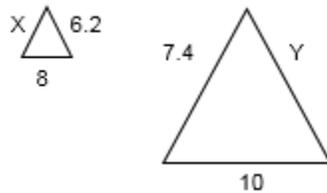
2. Topic: Solve a proportion

   - Example: Solve $\dfrac{5}{12} = \dfrac{y}{30}$

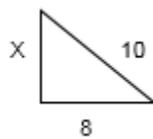3. Topic: Use a proportion in problem solving

   - Example: A worker can complete the assembly of 16 cell phones in 4 hours. At this rate, how many can the worker complete in a 40-hour work week?

4. Topic: Find the unknown length of sides in similar triangles

   - Example: Find the length of X and Y.

5. Topic: Use the Pythagorean Theorem

   - Example: Find the length of the missing side.

6. Topic: Solve percent problems

   - Example: What is 35% of 105?

7. Topic: Solve percent problems using proportions

   - Example: 25.6 is what percent of 80?

8. Topic: Solve percent problems involving sales tax

   - Example: If the sales tax rate increases from 5% to 6.5%, how much more will a person have to pay for an $18 book?
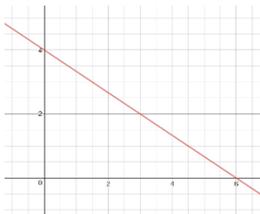
9. Topic: Graph by completing ordered pairs

- Example: Graph; $y = -\frac{2}{3}x + 4$

10. Topic: Find intercepts of a given equation

- Example: Find intercepts; 2x + 8y = -12

11. Topic: Find the slope of a given equation

- Example: Find slope; $5x - 4y = 16$

12. Topic: Using the slope and y-intercept of a given equation, graph the line

- Example: Graph; $y = \frac{2}{5}x - 1$

13. Topic: Write the equation of the line containing a given pair of points

- Example: Find the line given; (3, 5) and (-9, 10)

14. Topic: Write the equation of a line given a point and the slope

- Example: Find the line given; point (2, - 6) and slope = $-\,^{3}/_{4}$

If you only need Math 123 Math in the Modern Society (fulfills the GEM requirement of a Mathematical course), you need to finish Units 1 – 4.
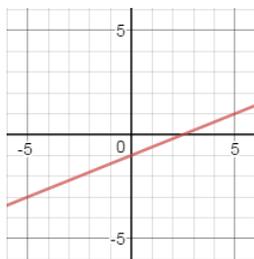

Answers:

Units 3, 4 – Ratios, Unit Rates, Proportions, Slopes, Lines and Graphs

1. $340 per week
2. y = 12.5
3. 160
4. $X = 5.92,\ Y = 7.75$
5. x = 6
6. 36.75
7. 32%
8. $0.27

9.

10. $(0, -\,^{3}/_{2})$ and (-6, 0)

11. slope = $^{5}/_{4}$

12.

13. $y = -\dfrac{5}{12}x + 6\dfrac{1}{4}$

14. $y = -\dfrac{3}{4}x + 4\dfrac{1}{2}$

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/