

## Math 210: Final Exam Review

There are 4 pages on this review.

To receive any credit:

- Your work must be turned in before the final – *no work will be accepted after you have started your final.*
- You must show all work – answers are on the last page.
- You must do every problem.

1. Multiply the following by hand.

a.  $(-68) \cdot (583)$

b.  $(-52) \cdot (-58)$

c.  $(297) \cdot (-268)$

2. Solve the equations

a.  $3x - 2 + 5x = 2x + 12$

b.  $2x - 3(4 - x) = x - 8$

c.  $\frac{2}{3}x - 1\frac{3}{8} = \frac{5}{8}$

d.  $\frac{4x - 7}{3x + 2} = \frac{50}{52}$

3. Simplify as much as possible

a.  $\left[2 + (5 + 3)^2\right] - 4 \cdot 6 \div 3 + 9$

b.  $7.2 - (6.2 - 2.7)^3 \div 3.6 + \sqrt{0.49}$

c.  $\left(\frac{3}{5} + \frac{1}{10}\right) \div 2\frac{2}{3} - 3\frac{1}{2}$

d.  $8\sqrt{25} - 5\sqrt{95} + \sqrt{147}$

4. A rectangle has an area of  $42 \text{ cm}^2$ . The length of the rectangle is 10.5 cm.

a. Find the width of the rectangle.

b. Find the perimeter of the rectangle.

5. The height of a triangle is 3 less than 4 times the base. The height of the triangle is 29 inches.

a. Find the length of the base of the triangle

b. Find the area of the triangle.

6. Simplify the polynomials as much as possible:

a.  $(4x^3 - 3x^2 + 11) + (x^3 + 6x) - (2x^2 - 7x + 9)$

b.  $(3x - 6)(4x + 5)$

c.  $(8x - 7)(8x + 7)$

d.  $5x(2x^2 + 3x - 6) + (x + 4)(2x - 1)$

7. Simplify as much as possible.

a.  $\left(\frac{16a^3b^2}{12ab^7}\right)^3$

b.  $(2x^2y)^2 \cdot (3xy^2)^3$

8. A company that makes clocks wants to start an electronic clock division. The start-up costs for the division will be \$12,000 and it will cost \$5.67 to produce each clock.

a. Find an equation for the total cost of producing  $n$  clocks.

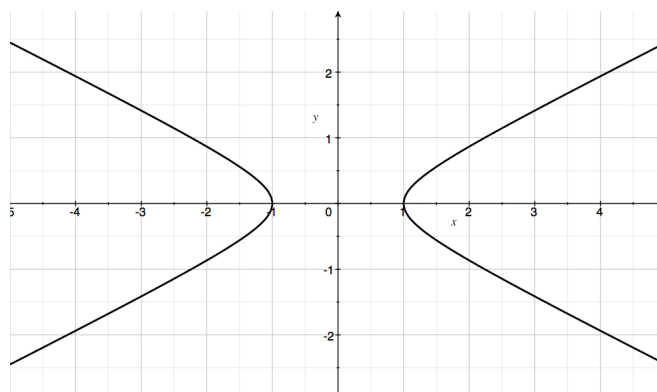
b. Find the cost of producing 15,000 clocks.

c. How many clocks are produced, if the total cost is \$67872.18.

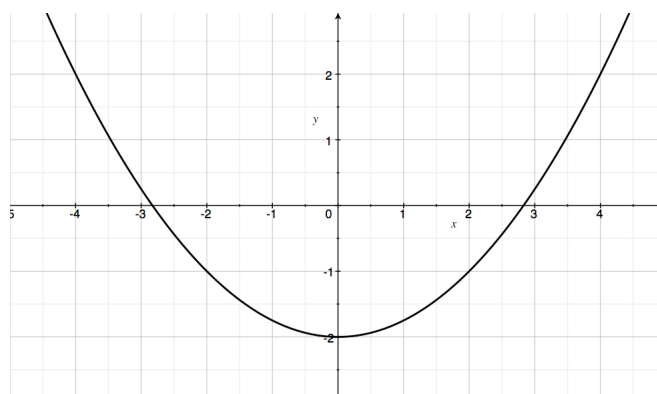
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9. Determine if the following represent functions. *Explain your answers.*

a.



b.



c.

$x$	-2	2	1	-1
$y$	2	-2	-1	1

d.

$x$	-2	-2	-1	-1
$y$	2	2	1	1

10. A line goes through the points  $(2, -1)$  and  $(3, 4)$

- a. Find the slope of the line.
- b. Find the y-intercept of the line.
- c. Find the equation of the line.
- d. Create a table and sketch the graph of the line.

11. Repeat the previous problem, using the points  $(-3, 8)$  and  $(2, 11)$

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12. Convert the following:
- 5600 decimeters into decameters
  - 4.7 kg into centigrams
  - 3.4 feet into centimeters
  - 4 pounds into milligrams
13. You are doing business with a paper maker from another country. They say you can get 12 kg of paper for \$15. In the US, you know a guy that sells paper at a rate of \$4 for 6.5 pounds of paper. Who can you get paper cheaper from?
14. Solve the percent problems
- What is 19% of 6732?
  - 78 is what percent of 94?
  - 94% of what is 113?
15. You need to get 78% on an exam to get a B in a class. The exam is out of 125 points. How many points will you need to get to get a B? What is your percentage, if you get 103 points?
16. A videogame costing \$35 has a markup rate of 65%.
- Find the Markup.
  - Find the Selling price.
  - How would the selling price change, if the markup rate was higher?
17. A pair of headphones that regularly sell for \$45, are on sale for \$38.
- Find the Markdown.
  - Find the discount rate.
  - How would the discount rate change, if the sale price is less than \$38?
18. A circle has a diameter of 36 inches.
- What is the radius of the circle?
  - What is the circumference of the circle?
  - Find the area of the circle.
19. A right triangle has a hypotenuse of 14 cm and one leg has a length of 10 cm.
- Find the length of the other leg.
  - Find the perimeter of the triangle.
  - Find the area of the triangle.

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### Selected Answers:

- 1a. -39644      1b. 3016      1c. -79596  
2a.  $x = 7/3$       2b.  $x = 1$       2c.  $x = 3$       2d.  $x = 8$   
3a. 67      3b. -4.01      3c. -259/80      3d. 3.39  
4a. 4 cm      4b. 29 cm  
5a. 8 inches      5b.  $116 \text{ in}^2$   
6a.  $5x^3 - 5x^2 + 13x + 2$       6b.  $12x^2 - 9x - 30$       6c.  $64x^2 - 49$       6d.  $10x^3 + 17x^2 - 23x - 4$   
7a.  $\frac{64a^6}{27b^{15}}$       7b.  $108x^7y^8$   
8b. \$97050      8c. 9854 clocks  
9a. No      9b. Yes      9c. Yes      9d. Yes  
10a. 5      10b. -11      10c.  $y = 5x - 11$   
11a.  $3/5$       11b.  $49/5$       11c.  $y = \frac{3}{5}x + \frac{49}{5}$   
12a. 56 dam      12b. 470000 cg      12c. 103.98 cm      12d. 1818181.82 mg  
13. The person from another country is cheaper  
14a. 1279.08      14b. 82.98%      14c. 120.21  
15. 97.5 points/82.4%  
16a. \$22.75      16b. \$57.75  
17a. \$7      17b. 15.56%  
18a. 18 inches      18b. 113.10 inches      18c. 1017.88 sq. inches  
19a. 9.80 cm      19b. 33.8 cm      19c. 49 sq. cm