Math 098	Name		(please print)
Final Exam – Form A			
Winter 2018	Instructor	Score	/100 + 3 <i>bonus</i>

Show all work and simplify to receive full credit. Point-values for each problem are shown in parentheses.

For problems 1-6 perform the indicated operation.

- 1.  $(11x^3 + 7x 3) (2x^2 8)$ 1.\_\_\_\_\_ (3) 2. (w - 3y)(3w - y)2.\_\_\_\_\_ (3) 3.  $2R(3R-1) + R^2 - 7$ 3.\_\_\_\_\_ (3) 4.  $\frac{7t-10t^2}{t}$ 4.\_\_\_\_\_ (3) 5.  $\frac{25x^2y^4}{15xy^7}$ 5.\_\_\_\_\_ (3)  $6. \quad \frac{P}{18R} - \frac{2R}{12PR}$ 6.\_\_\_\_\_(3)
  - 7. Simplify the radical below. No decimal answers.  $\sqrt{36x^5y^2}$

8. Simplify the expression below and write using positive exp $\frac{4xy^{-2}}{x^0y}$	onents only. 8	(3)
9. Factor completely. $4p^2 - 3p - 10$	9	(3)
10. Factor completely. $xy^2 - x$	10	(3)
11. Solve for $Q$ . $2(5 - 11Q) = -4Q$	11	(4)
12. Solve for $r$ by factoring. $r^2 - 2r - 35 = 0$	12	(4)
13. Solve for <i>x</i> . $x^2 = 9$	13	(4)
14. Solve for <i>t</i> . $\frac{2t+4}{4t} = \frac{1}{t} + 3$	14.	(4)

15. Solve the inequality below for x and graph the solution set on the number line.  $-(3-4x) \le 9$ 





(2)

18. An 8 ounce jar of peanut butter costs \$3.20. A 12 ounce jar of peanut butter costs \$4.56. Circle the option below that is the better option and give its price per ounce in the answer space.



19. Circle the equation(s) below in which the two given variables vary directly

$$y = x$$
  $m = \frac{3}{w}$   $P = 4R^2$   $D = 50T$   $C = \pi d$  (3)

- 20. The cost *C* (in dollars) to rent a 10 ft by 10 ft storage space for *t* months is given by the equation C = 90t + 105.
- 21. Write the expression  $\sqrt[3]{x^5}$  using exponential notation.

21. \_\_\_\_\_(2)

22. Find the equation of the line containing the point P(1,8) and the point Q(4,35). Answer must be in slope-intercept form.

	22	(3)
23. Find the slope of the line perpendicular to the line $y = \frac{2}{3}x + 9$ .		

23.\_\_\_\_\_(2)

24. Solve the following system of linear equations. Write your solution as an ordered pair.

 $\begin{array}{l} x + y = -4 \\ 3x + 2y = 11 \end{array}$ 

24.\_\_\_\_\_ (3)

25. How many gallons of a 25% antifreeze solution and a 15% antifreeze solution must be mixed to obtain 10 gallons of a 23% antifreeze solution? Write a system of equations, but do NOT solve the problem.

(4)

26. Solve for x using the quadratic formula,  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ Round your answers to the nearest hundredth.  $5x^2 + 4x - 6 = 0$ 

26. x =\_\_\_\_\_(2)

& *x* =\_\_\_\_(2)

27. A new plasma television is listed as being 36 inches across the diagonal. If the screen measures 24 inches in height, what is the width of the screen. Round your answer to the nearest inch.



28. Given the equation,  $y = x^2 - 2x - 3$  find the vertex, *y*-intercept, *x*-intercepts, and draw the graph.



**Bonus**: For three bonus points, solve the equation 
$$\frac{3}{k} = \frac{1}{P} + \frac{1}{Q}$$
 for  $Q$ .

Bonus: *Q* =\_\_\_\_\_ (3)