

Math 95 Final Exam Review

1. Simplify. $-35 + 5 \cdot 2 + 7(5 - 3)^2$
2. Simplify. $\frac{(-2)^3 - 5 + 7}{(5 - 3)^2}$
3. Subtract. $(5y^3 + 9y^2 - 5y) - (6y^3 - 2y^2 + 5y - 11)$
4. Add. $(3a^2 + a + 9) + (-5a - 16)$
5. Evaluate for $x = -2$ $\frac{5x^2 - 2x}{4x}$
6. Solve. $10x = x$
7. Solve. $4x - 7x - 2x + 11 = -54$
8. Solve. $5(t + 3) - (3t - 7) = -56$
9. Solve. $-3x + 9 < 14$
10. Perform the indicated operations. $(2x - 5)(3x + 1)$
11. Perform the indicated operations. $(2x - 3)^2$
12. Perform the indicated subtraction. $\frac{a - b}{6} - \frac{a + b}{6}$
13. Find the area and perimeter of a rectangle with length $2x + 7$ and width $x - 3$.
14. Simplify. $\frac{15x^3 - 9x^2 + 12x + 3}{3x}$

15. Simplify. $\frac{1}{g^{-3}}$
16. Simplify. $(4x^3y^{-2})^5$
17. Simplify. $(2x^3y)^4$
18. Simplify. $(3258)^0$
19. Solve $\frac{x}{2} + \frac{x}{3} = \frac{15}{6}$
20. A 24 foot pipe has been cut into two sections. One section is 3 times as long as the other. How long is each section? (Assign your variables, set up equation and solve.)
21. Factor out the greatest common factor. $24ab^4 + 12ab^3 - 18ab^2$
22. Factor out the greatest common factor. $7ab^3 + 21a^2b^3 - 28ab^5$
23. Factor by Grouping. $21x^2 - 14xy + 15xy - 10y^2$
24. Factor by Grouping. $7bt + 3ct - 7b - 3c$
25. Factor completely. $2x^2 - 5x - 3$
26. Factor completely. $3x^2 + 9x - 30$
27. Factor completely. $81r^2 + 198rm + 121m^2$
28. Factor completely. $144m^2 - 25n^2$
29. Factor completely. $9a^2 + 16$
30. Factor a **-1** out of $-3ab+2k-7$

31. Factor completely. $5m^2 - 35m + 60$
32. Factor completely. $5x^2 + x + 2$
33. Solve. $(4k-5)(3k+2)=0$
34. Solve. $5x + 14 = x^2$
35. Solve. $k(k-11) = -10$
36. Solve $-b^2 + 5b = -24$
37. An object has been thrown straight up into the air. The formula $h = -16t^2 + 64t$ gives the height h of the object above the ground after t seconds, when it is thrown upward with an initial velocity of *64 feet per second*.
After how many seconds will the object hit the ground if it is thrown with a velocity of 64 feet per second?
38. A lot has the shape of a right triangle with one leg 2 meters longer than the other. The hypotenuse is 4 meters longer than the shorter leg. Find the lengths of the three sides.
39. Factor $9a^4 - 64b^4$
40. The length of a rectangular shipping pallet is 2 feet less than 2 times its width. Its area is 24 square feet. Find the dimensions of the pallet.
41. Evaluate for $x = -3$. $\frac{3 - x}{x^2 + 5}$
42. Perform the indicated multiplication. $\frac{21x^2y^2}{4xy} \cdot \frac{24x^2}{7y^5}$
43. Perform the indicated division. $\frac{4x}{3z^2} \div \frac{12x^3}{z^4}$
44. Perform the indicated division and simplify. $\frac{y^2 - 6y + 8}{y + 6} \div \frac{y - 4}{3y + 18}$

45. Perform the addition. $\frac{x+3}{5x} + \frac{x+7}{5x}$

46. Perform the addition. $\frac{6}{z^2} + \frac{9}{z}$

47. Perform the addition. $\frac{5x^2}{9y} + \frac{7x}{6}$

48. Perform the subtraction. $\frac{-5}{8} - \frac{3}{2a}$

49. Perform the subtraction. $\frac{2f}{5} - \frac{4f+11}{5}$

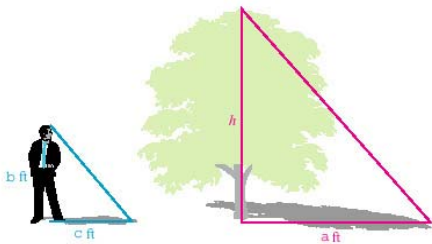
50. Solve the equation; check your solution for extraneous roots. $\frac{-5}{w} + 3 = \frac{-5}{w}$

51. Solve the equation. $\frac{2}{3t} + \frac{1}{t} = \frac{5}{9}$

52. If a homeowner can paint a house in 14 days and a professional painter can paint the same house in 10 days, how long will it take if they work together?

53. If skirts are on sale at two for \$6, how much will 5 skirts cost?

54. A tree casts a shadow of $a = 36$ feet at the same time as a $b = 6$ -foot man casts a shadow of $c = 4$ feet. (See the illustration) Find the height of the tree.



55.

Solve for the variable in the proportion.

$$\frac{x+14}{2} = \frac{15}{3}$$

56. Assume that y varies inversely with x . If $y = 40$ when $x = 10$, find y when $x = 50$.

57. Assume that t varies directly with s . If $t = 10$ when $s = 16$, find t if $s=40$.

58. Reduce. $\frac{15k - 21}{10k - 14}$

59.

Reduce. $\frac{15a^3b}{5ab^2}$

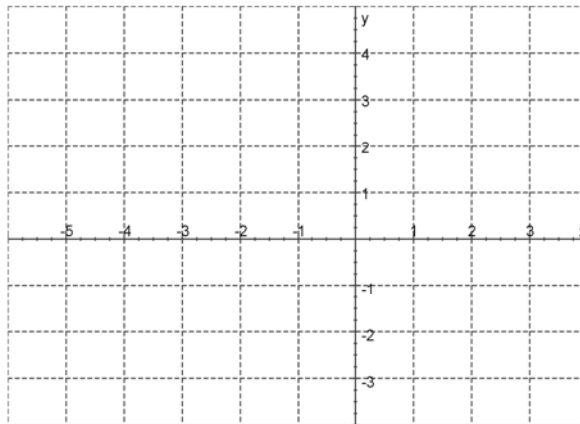
60.

Is $(7,5)$ a solution for $3x - 2y = 12$?

61. Complete the table of values to sketch the graph:

$$y = |x + 2|$$

x	y
-4	
-3	
-2	
4	



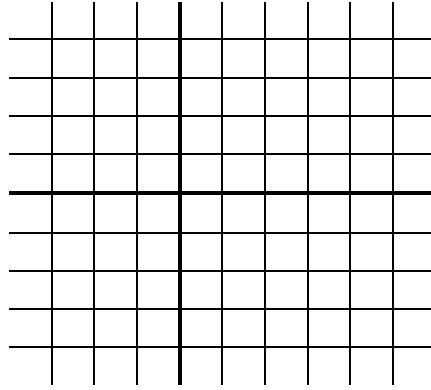
62. Construct a table of values for $y = x^2$.

x	y
-6	
-3	
1	
4	

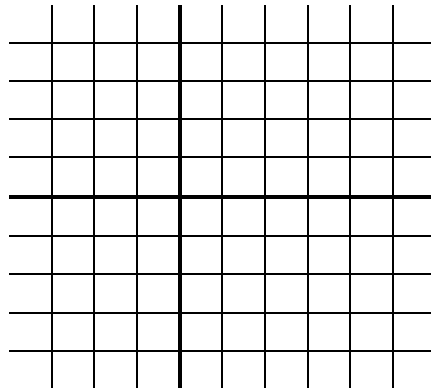
63. Find the slope and then write the equation of the line that contains the ordered pairs $(0,0)$ and $(1,4)$.

64. Find the slope of the line passing through the points $A (1,2)$ and $B (4,8)$, if possible
 $m =$ _____

65. Graph $3x-y=2$.



66. Graph $y=1/2 x$.



67. Find each value if $f(x)=4x-1$.

$f(0)$ $f(-2)$ $f(5)$

68. Find each value if $g(x) = 2- x^2$

$g(-1)$ $g(1/2)$ $g(-5)$

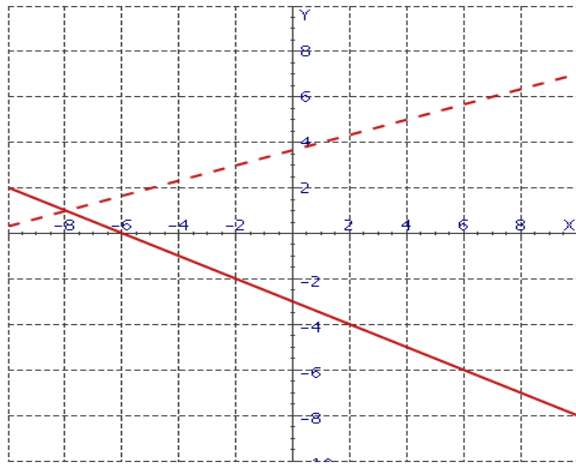
69. State the slope and y intercept of $2y=5x-8$.

70. Write the equation of a line with a slope -5 and a y intercept of 12 .

71. 61. Are the lines parallel, perpendicular or neither? $x + 5y = -10$ and $y = 5x$

72. The following system of equations is graphed below. Find the solution?

$$\begin{cases} x + 2y = -6 \\ x - 3y = -11 \end{cases}$$



73. $x - 3y = 6$

Solve the system.

$$2x + y = 5$$

74. $-2(x + 1) = 3y - 6$

Solve the system.

$$3(y + 2) = 10 - 2x$$

75. A photographer sells two wedding packages. The Deluxe package gives one 10x14 and ten 8x10 color photos for \$130. The Regular package gives one 10x14 and five 8x10 color photos for \$75. How much does a 10x14 photos cost? How much does an 8x10 photo cost?

76. Use two equations in two variables to solve the following problem:

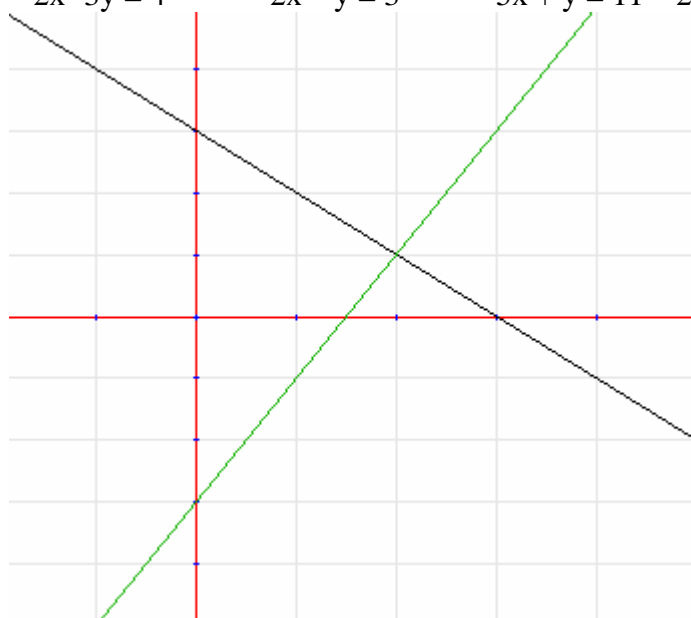
If receipts for the movie advertised in the illustration were \$583 for an audience of 190 people, how many senior citizens

attended?

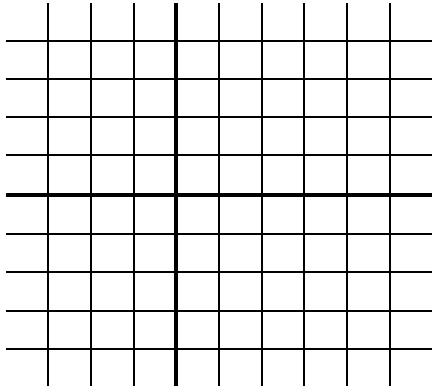


77. Which system defines the graph? Justify your answer. (2,1) is the point of intersection.

- a. $x + y = 3$ b. $x + y = 3$ c. $x - y = 3$ d. $3x - y = 5$
 $2x - 3y = 4$ $2x - y = 3$ $5x + y = 11$ $2x + y = -2$



78. Graph the line $x = 5$ and the line $y = -2$ below. Where do the lines cross?



79. Simplify. $\sqrt{169}$
80. Simplify. $\sqrt{28}$
81. Simplify. $\sqrt{x^3}$
82. Simplify. $\sqrt{75x^2y^3}$
83. Simplify. $\sqrt{\frac{72q^7}{25q^3}}$
84. Simplify. $3\sqrt{10} + 4\sqrt{10}$
85. Simplify. $\sqrt{20} + \sqrt{45}$
86. Simplify. $\sqrt{27xy^3} - \sqrt{48xy^3}$
87. Simplify. $\sqrt{5} \cdot \sqrt{7}$
88. Simplify. $2\sqrt{2}(\sqrt{8} - 1)$
89. Simplify. $(\sqrt{5} + \sqrt{11})(\sqrt{5} - \sqrt{11})$

90. Simplify. $(\sqrt{5a} - 2)(\sqrt{5a} + 3)$
91. Given that $f(x) = 4 + \sqrt{x}$ find $f(4)$. Find $f(-4)$.
92. A 16 foot ladder reaches a window 15 feet above the ground. How far from the wall is the base of the ladder?
93. $\sqrt{2x} - 4 = 7$
94. $x - 5 = \sqrt{x + 7}$
95. $t^2 = 48$
96. $(x - 3)^2 = 25$
97. $(x - 5)^2 = 40$
98. Solve using the Quadratic formula. $x^2 + 8x + 12 = 0$
99. Solve using the Quadratic formula $x^2 = 4x + 7$
- $\frac{1}{0}$ Solve using the Quadratic formula $5x^2 - 8x = -3$
- $\frac{0}{1}$ Solve using the Quadratic formula $2x^2 + x + 1 = 0$
- $\frac{1}{0}$
- $\frac{1}{1}$