

Math 1021 Review for Test 2

NOTE THIS IS NOT ALL ENCOMPASSING. THERE MIGHT BE TYPES OF PROBLEMS ON THE TEST THAT ARE NOT ON THIS REVIEW. You must know how to do any of the types of homework problems that were assigned.

In 1 – 7, solve the equations for x .

1. $3x + 11 - (6x - 11) = 0$

2. $5(x - 2) + 3(3x - 1) = 4(x - 3) + 7x$

3. $\frac{2}{x^2 - 9} - \frac{3}{x - 3} = \frac{1}{x + 3}$

4. $\frac{3x + 5}{x^2 + 3x + 2} = \frac{1}{x + 2} + \frac{2}{x + 1}$

5. $\sqrt{3x - 2} = 5$

6. $\sqrt{4x + 8} - \sqrt{4x + 3} = 1$

7. $|4x + 3| = 8$

In 8 – 12, solve the inequalities and graph the solutions. Express the solutions in interval notation.

8. $-4x - 5 \leq 0$

9. $\frac{x + 2}{x - 3} \leq 0$

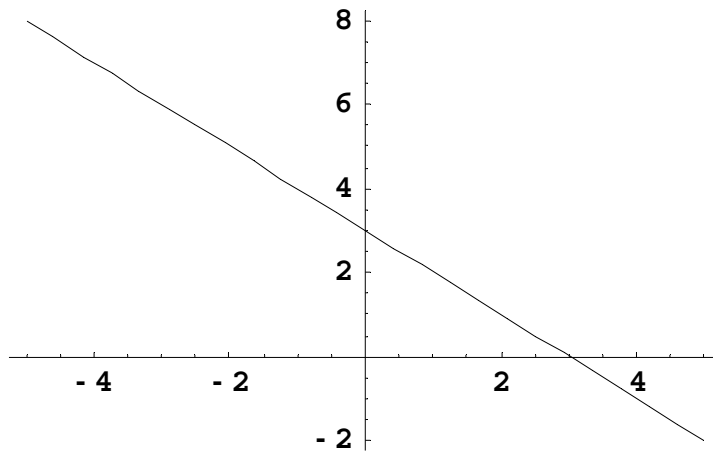
10. $\frac{x - 1}{2x + 3} > 0$

11. $|3x + 4| < 3$

12. $|5x - 4| \geq 2$

13. With the aid of the current, Joe can row a canoe 3 miles in 12 minutes. Against the current, he requires 18 minutes to row the same distance. How fast does Joe row in still water, and how fast is the current?
14. Two liters of 40% acid are mixed with 4 liters of another acid to form a 50% acid solution. What is the strength of the added acid?
15. Ann can clean a pool in 3 hours and Mary can clean it in 2 hours. How long will it take the girls to clean the pool together?
16. Find a number such that 10 less than two-thirds the number is one-fourth the number.
17. Suppose a line L passes through point $P_1(2, -3)$ and has slope $m = 3$.
- Find the slope-intercept equation of line L .
 - Find a point-slope equation of line L .
18. Find an equation of the line passing through the points $P_1(-4, -4)$ and $P_2(-5, 2)$.
19. What is the midpoint of the line segment P_1P_2 from the previous problem.
20. What is the distance between points P_1 and P_2 from problem 19.
21. Given $P_1(2, -3)$, $P_2(4, 1)$ and $P(x, 5)$, find the value of x for which $d(P, P_1) = d(P, P_2)$.
22. A diameter of a circle has endpoints $P_1(-1, 4)$ and $P_2(10, 1)$. Is the point $P(8, 7)$ on the circle? (2.4 Exercise 31)

23. The equation of a vertical line is of the form _____. The equation of a horizontal line is of the form _____.
24. What is an equation of the line whose graph is



25. Graph the lines $y = 2x - 3$, $y = -2x + 3$, $y = -4$, and $x = 2$.
26. Determine whether the following pair of lines are parallel, perpendicular or neither. Be able to explain your reasoning.
- $$4x - 2y = 3$$
- $$-2x + y = 1$$
27. Find an equation of the line L through the point $(-2, 1)$ which is parallel to the line $2x - 5y = 7$.
28. Find an equation of the line L through the point $(-2, 1)$ which is perpendicular to the line $2x - 5y = 7$.
29. Solve the following systems of equations:
- (a) $2x - 3y = 7$
 $3x - y = 1$
- (b) $7x - 5y = -1$
 $3x + 2y = 12$
- (c) $x + y = 3$
 $4x + 4y = 9$