

Algebra II Summer Review

Due the first day of class.

Work all problems on your paper. You MUST show your work.

1. Solve. $3(2x-3)+5=7x+21$
2. Solve. $\frac{2}{3}(4x-5)=18$
3. Soriano has 20 quarters and nickels. He has a total of three dollars. How many nickels does he have?
4. Find the slope of the line $6x-7y=21$.
5. Find the range of the function $f(x)=2x^2-4x+5$ if the domain is $\{-2, 0, 2\}$
6. Write the equation of the line containing the points $(2, 3)$ and $(8, 9)$.
7. Write the equation of the line perpendicular to $2x-3y=7$ containing the point $(-2, 6)$.
8. Simplify. $4-3(2x^2-x)+4x-x^2$
9. Solve for "x" in each equation. (a) $8a=2xy+b$ (b) $\frac{fh}{2x}=mn$
10. Plane A leaves Eastsboga traveling east at a speed twice that of plane B which is traveling west. How fast is each plane traveling if they fly for 3 hours and are 1800 miles apart?
11. Multiply (a) $(2x-3)(4x-5)$ (b) $(3x+1)(2x^2-7x-2)$
12. Factor (a) x^2-36 (b) $8x^4-50$
13. Factor (a) x^2-6x+9 (b) $x^2+12xy+32y^2$
14. Factor (a) $12x^2+x-6$ (b) $u(v-3)+3(3-v)$
15. The length of a rectangle is 9 more than its width. If the area is 90 square feet, find the dimensions.
16. Solve the system. $y=x+2$ & $2x+y=11$
17. Solve the system $3x+4y=-25$ & $2x-3y=6$
18. An amusement park charges admission plus a fee for each ride you go on. 2 admissions and 5 rides cost \$22. 2 admissions and 6 rides cost \$24. What is the charge for 1 admission and the charge for 1 ride?
19. (a) 30 is what percent of 150? (b) What is 45% of 150? (c) 80% of what number is 120?
20. Solve. (a) $\frac{x}{5}=\frac{20+x}{15}$ (b) $\frac{2}{x+1}-\frac{3}{x-1}=\frac{x}{x^2-1}$ (c) $x+\frac{x-1}{3}=\frac{x}{2}-2$
21. Divide: (a) $\frac{10a^2-15a+5}{5}$ (b) $\frac{x^3-2x^2+3x-6}{x-2}$
22. Multiply: (a) $(3x^2y^3)(6xy^2)$ (b) $(2a^2b^3)(3a^3b^4)^2$
23. How many liters of pure acid should a chemist mix with 4 L of a 10% acid solution to produce a solution that is 80% acid?
24. Jo invested part of her \$8000 at 12% and part at 8%. If the annual investment income is \$825, how much was invested at each rate?

25. Simplify. $(x^{2x+3})(x^4)$

26. Simplify. $\frac{12x^{-2}y^6}{18x^0y^2}$

27. Simplify. $(3a^{-1}b^3)^3$

28. Solve $|2x+12|=24$

29. Solve. $3-2x \leq -11$

30. Solve. Graph your solution on a number line. $3 \leq 2x-5 < 13$

31. Solve. $2|x+5|-7 > 7$

32. Simplify. (a) $\frac{2}{\sqrt{3}}$ (b) $\frac{1}{4+\sqrt{3}}$

33. Simplify. $\sqrt{150x^7y^{20}}$

34. Find the length of the hypotenuse of a right triangle with legs of length 6 and 10. Give your answer in simplest radical form.

35. Find the distance between the given points. $(-3, -4)$ & $(3, 2)$

36. Solve. $2\sqrt{x}-3=7$

37. Solve. $\sqrt{16+6x}=x$

38. Solve. $6x^2+5x-4=0$

39. Solve. $3x^2-5x-1=2$

40. Express in simplest form. (a) $\frac{x}{x^2-4} - \frac{1}{x+2}$ (b) $\frac{1}{2x+2} + \frac{1}{2} - \frac{1}{x+1}$

41. Divide (a) $8n^2+10n-5$ by $4n-3$ (b) $8x^4-3x^2+x-10$ by $x-1$

42. Multiply $\frac{x^2-2x-8}{6x^2-24x} \cdot \frac{2x^2-3x-2}{x^2-4}$

43. Graph the system. $y < \frac{1}{2}x+2$
 $2x+3y \geq 3$

44. Graph. $y=(x+3)^2+1$

45. Graph. $y=x^2+4x-2$

46. Graph. $y=2^{x-1}$