Name_____ Class_____ Date_____

1-4 Practice

Form G

Solving Equations

Solve each equation.

1. $7.2 + c = 19$

2. $8.5 = 5p$

3. $\frac{d}{4} = -31$

4. $s - 31 = 20.6$

Solve each equation. Check your answer.

5. $9(z - 3) = 12z$

6. $7y + 5 = 6y + 11$

7. $5w + 8 - 12w = 16 - 15w$

8. $3(x + 1) = 2(x + 11)$

Write an equation to solve each problem.

9. Two brothers are saving money to buy tickets to a concert. Their combined savings is $55. One brother has $15 more than the other. How much has each saved?

10. Geometry The sides of a triangle are in the ratio 5 : 12 : 13. What is the length of each side of the triangle if the perimeter of the triangle is 15 inches?

11. What three consecutive numbers have a sum of 126?

Determine whether the equation is *always*, *sometimes*, or *never* true.

12. $6(x + 1) = 2(5 + 3x)$

13. $3(y + 3) + 5y = 4(2y + 1) + 5$

Solve each formula for the indicated variable.

14. $S = L(1 - r)$, for r

15. $A = lw + wh + lh$, for w

Solve each equation for y.

16. $\frac{4}{9}(y + 3) = g$

17. $a(y + c) = b(y - c)$

18. $\frac{y + 3}{t} = t^2$

19. $3y - yz = 2z$

1-4 Practice (continued) Form G

Solving Equations

Solve each equation.

20. $0.5(x - 3) + (1.5 - x) = 5x$

21. $1.2(x + 5) = 1.6(2x + 5)$

22. $0.5(c + 2.8) - c = 0.6c + 0.3$

23. $\frac{u}{5} + \frac{u}{10} - \frac{u}{6} = 1$

Solve each formula for the indicated variable.

24. $V = \frac{\pi}{3} r^2 h$, for h

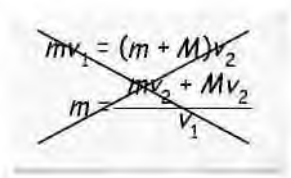
25. $D = kA\left[\frac{T_2 - T_1}{L}\right]$ for T_1

Write an equation to solve each problem.

26. Two trains left a station at the same time. One traveled north at a certain speed and the other traveled south at twice that speed. After 4 hours, the trains were 600 miles apart. How fast was each train traveling?

27. Geometry The sides of one cube are twice as long as the sides of a second cube. What is the side length of each cube if the total volume of the cubes is 72 cm^3?

28. Error Analysis Brenna solved an equation for m. Do you agree with her? Explain your answer.



Solve each problem.

29. You and your friend left a bus terminal at the same time and traveled in opposite directions. Your bus was in heavy traffic and had to travel 20 miles per hour slower than your friend's bus. After 3 hours, the buses were 270 miles apart. How fast was each bus going?

30. Geometry The length of a rectangle is 5 centimeters greater than its width. The perimeter is 58 centimeters. What are the dimensions of the rectangle?

31. What four consecutive odd integers have a sum of 336?

Name_____ Class_____ Date_____

1-5 Practice

Form G

Solving Inequalities

Write the inequality that represents the sentence.

1. Four less than a number is greater than –28.

2. Twice a number is at least 15.

3. A number increased by 7 is less than 5.

4. The quotient of a number and 8 is at most –6.

Solve each inequality. Graph the solution.

5. $3(x + 1) + 2 < 11$

6. $5t - 2(t + 2) \geq 8$

7. $2[(2y - 1) + y] \leq 5(y + 3)$

8. $\frac{1}{3}(7a - 1) \leq 2a + 7$

9. $5 - 2(n + 2) \leq 4 + n$

10. $-2(w - 7) + 3 > w - 1$

Solve each problem by writing an inequality.

11. Geometry The length of a rectangular yard is 30 meters. The perimeter is at most 90 meters. Describe the width of the yard.

12. Geometry A piece of rope 20 feet long is cut from a longer piece that is at least 32 feet long. The remainder is cut into four pieces of equal length. Describe the length of each of the four pieces.

13. A school principal estimates that no more than 6% of this year's senior class will graduate with honors. If 350 students graduate this year, how many will graduate with honors?

14. Two sisters drove 144 miles on a camping trip. They averaged at least 32 miles per gallon on the trip. Describe the number of gallons of gas they used.

1-5 Practice (continued) *Form G*

Solving Inequalities

Is the inequality *always, sometimes,* or *never* true?

15. $3(2x + 1) > 5x - (2 - x)$

16. $2(x - 1) \geq x + 7$

17. $7x + 2 \leq 2(2x - 4) + 3x$

18. $5(x - 3) < 2(x - 9)$

Solve each compound inequality. Graph the solution.

19. $3x > -6$ and $2x < 6$

20. $4x \geq -12$ and $7x \leq 7$

21. $5x > -20$ and $8x \leq 32$

22. $6x < -12$ or $5x > 5$

23. $6x \leq -18$ or $2x > 18$

24. $2x > 3 - x$ or $2x < x - 3$

Solve each problem by writing and solving a compound inequality.

25. A student believes she can earn between $5200 and $6250 from her summer job. She knows that she will have to buy four new tires for her car at $90 each. She estimates her other expenses while she is working at $660. How much can the student save from her summer wages?

26. Before a chemist can combine a solution with other liquids in a laboratory, the temperature of the solution must be between 39°C and 52°C. The chemist places the solution in a warmer that raises the temperature 6.5°C per hour. If the temperature is originally 0°C, how long will it take to raise the temperature to the necessary range of values?

27. The Science Club advisor expects that between 42 and 49 students will attend the next Science Club field trip. The school allows $5.50 per student for sandwiches and drinks. What is the advisor's budget for food for the trip?

Name_____ Class _____ Date _____

1-6 Practice

Form G

Absolute Value Equations and Inequalities

Solve each equation. Check your answers.

1. $|-3x| = 18$

2. $|5y| = 35$

3. $|t + 5| = 8$

4. $3|z + 7| = 12$

5. $|2x - 1| = 5$

6. $|4 - 2y| + 5 = 9$

Solve each equation. Check for extraneous solutions.

7. $|x + 5| = 3x - 7$

8. $|2t - 3| = 3t - 2$

9. $|4w + 3| - 2 = 5$

10. $2|z + 1| - 3 = z - 2$

Solve each inequality. Graph the solution.

11. $5|y + 3| < 15$

12. $|2t - 3| \leq 5$

13. $|4b| - 3 > 9$

14. $\frac{1}{2}|2w - 1| - 3 \geq 1$

15. $2|4x + 1| - 5 \leq 1$

16. $|3z - 2| + 5 > 9$

Write each compound inequality as an absolute value inequality.

17. $-7.3 \leq a \leq 7.3$

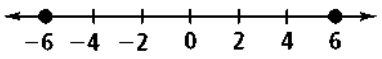
18. $11 \leq m \leq 19$

19. $28.6 \leq F \leq 29.2$

20. $0.0015 \leq t \leq 0.0018$

Write an absolute value equation or inequality to describe each graph.

21.



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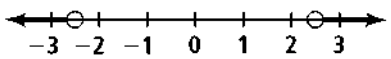

1-6 Practice (continued) *Form G*

Absolute Value Equations and Inequalities

Solve each equation.

23. $3|2x+5| = 9x-6$

24. $|4-3m| = m+10$

25. $2|4w-5| = 12w-18$

26. $\frac{3}{4}|8t-12| = 6(t-1)$

27. $|5p+3|-4 = 2p$

28. $|7y-3|+1 = 0$

Solve each inequality. Graph the solution.

29. $-3|2t+1| < 9$

30. $|-2x+4| \geq 4$

31. $\left|\frac{y+2}{3}\right| - 1 < 2$

32. $\frac{1}{7}|4z+5|+2 > 5$

Write an absolute value inequality to represent each situation.

33. To become a potential volunteer donor listed on the National Marrow Donor Program registry, a person must be between the ages of 18 and 60. Let a represent the age of a person on the registry.

34. Two friends are hiking in Death Valley National Park. Their elevation ranges from 228 ft below sea level at Badwater to 690 ft above sea level at Zabriskie Point. Let x represent their elevation.

35. The outdoor temperature ranged between 37°F and 62°F in a 24-hour period. Let t represent the temperature during this time period.

The diameter of a ball bearing in a wheel assembly must be between 1.758 cm and 1.764 cm.

36. What is the tolerance?

37. What absolute value inequality represents the diameter of the ball bearing? Let d represent the diameter in cm.