Pre-Test Assignment

Complete the following questions on a separate sheet of paper, including full solutions.

Solve each equation. You may express fractional answers in lowest form, or as a decimal (round to two decimal places). Show all your work for full marks.

1. $5x - 7 = 9x + 12$ $x = \frac{-19}{4}$

2. $3 + 10j = j - 16$ $j = \frac{-19}{9}$

3. $7(d + 8) = 5 - (3d - 9)$ $d = \frac{-21}{5}$

4. $4(x - 9) - 4(x + 10) = 15$ $x = no\ solution$

5. $5(y - 4) - (y - 3) = 13$ $y = \frac{15}{2}$

6. $8 - (7z - 7) = -6(z - 4) - (3z - 6)$ $z = \frac{15}{2}$

7. $16 = \frac{3(c-7)}{4}$ $c = \frac{85}{3}$

8. $\frac{5a}{4} + \frac{a-9}{3} = 6$ $a = \frac{108}{19}$

Solve and check each equation.

9. $3(r + 7) - (7r - 5) = -6(3r - 1) + 8$ $r = \frac{-6}{7}$

10. $-4(f - 8) + 2 = 2(3f - 5)$ $f = \frac{22}{5}$

11. $\frac{2p}{3} + \frac{p-4}{4} = \frac{1}{2}$ $p = \frac{18}{11}$

Translate the following into algebraic expressions

12. The sum of sixty-five and a number $65 + n$

13. Esfand's age increased by fifty-two $e + 52$

14. Your weight less twenty-six $w - 26$

15. The product of eighty and a number $80n$

16. Three quarters of the price of that item $\frac{3}{4}p$

17. Double the total of a number and five $2(n + 5)$

18. Six less than the product of a number and 5 $5n - 6$

19. Nine less than seven times the difference of two and a number $7(2 - n) - 9$

Rearrange the following formulas. Isolate the variable indicated in brackets

20. $S = t + a$ (t) $t = S - a$

21. $PV = T$ (V) $V = \frac{T}{P}$

22. $2A = PQ$ (Q) $Q = \frac{2A}{P}$

23. $V^2 = 4gh$ (h) $h = \frac{V^2}{4g}$

24. $a = \frac{p}{q}$ (p) $p = aq$

25. $v = u + at$ (u) $u = v - at$

26. $H = S - dl$ (l) $l = \frac{S-H}{d}$

27. $Y = \frac{Fl}{Ax}$ (x) $x = \frac{Fl}{YA}$

Solve the following word problems.

28. Janet is twice as old as Chris and Chris is three years older than Ken. The sum of their ages is 61. What are their ages?   Janet = 32   Chris = 16   Ken = 13

29. The sum of three consecutive even integers is –330. What are the numbers?   –112, –110, and –108

30. A garden has a perimeter of 144m

    a)   If the backyard is square, what are the dimensions?   36m by 36m

    b)   If the backyard is rectangular, and the length is three times the width, what are the dimensions?   18m by 54m

    c)   If the backyard is a triangle, as shown, write an algebraic expression for the perimeter and find its dimensions.   62m, 62m, and 20m

    d)   Which of the three backyard designs has the greatest area? Which has the least? $\square = 1296m^2$ $\boxed{} = 972m^2$ $\triangle = 305.94m^2$
               ↓ most   ↓ least

(triangle diagram: two sides labeled x, base labeled $\frac{x-2}{3}$)
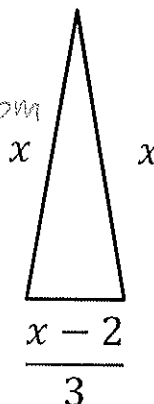
31. Bobbie has $1.54 in quarters, dimes, nickels, and pennies. He has twice as many dimes as quarters and three times as many nickels as dimes. The number of pennies is the same as the number of dimes. How many of each coin does he have?   2 quarters, 4 dimes, 12 nickels, 4 pennies

Solve each equation. You may express fractional answers in lowest form, or as a decimal (round to two decimal places). Show all your work for full marks.

32. $\frac{1}{2}(x + 6) = 4(x - 2)$ $x = \frac{22}{7}$

33. $\frac{1}{3}k + \frac{1}{2} = \frac{1}{4}k$ $k = -6$

34. $\frac{y-6}{4} - 2 = \frac{5y}{2} + \frac{7y+1}{5}$ $y = \frac{-74}{73}$

35. $\frac{1}{4}(x - 3) = -\frac{2}{3}(4x - 5)$ $x = \frac{7}{5}$

36. $p - 4 = -9 + p$ $p =$ no solution

37. $m(m + 3) + 5m = 3 + m(m - 4)$ $m = \frac{1}{4}$

38. $\frac{2a}{4} + \frac{a-4}{5} = \frac{1}{2}$ $a = \frac{13}{7}$

39. $6g - 4(-3g + 5) - 12 = -(g + 9) + 7(3g - 4)$ $g = \frac{5}{2}$