HW SOL 11.2

May 23, 2018 8:47 AM

Math 8

HW 11.2 Solving Two Step Eq's

Name _____ Date _____

Solve.

1. $13 = y + 20$

$-20 \quad -20$

$-7 = y$

2. $-11 = n - 12$

$+12 \quad +12$

$1 = n$

3. $p + 17 = 9$

$-17 \quad -17$

$p = -8$

4. $m - 15 = -4$

$+15 \quad +15$

$m = 11$

5. $w - 14 = -20$

$+14 \quad +14$

$w = -6$

6. $k - 26 = -37$

$+26 \quad +26$

$k = -11$

7. $-58 = y - 16$

$+16 \quad +16$

$-42 = y$

8. $n + \frac{1}{2} = \frac{5}{2}$

$-\frac{1}{2} \quad -\frac{1}{2}$

$n = \frac{5}{2} - \frac{1}{2}$

$h = 2$

9. $-\frac{7}{4} + p = \frac{9}{4}$

$+\frac{7}{4} \quad +\frac{7}{4}$

$p = \frac{16}{4}$

$p = 4$

10. $\frac{10}{3} = b + \frac{1}{3}$

$-\frac{1}{3} \quad -\frac{1}{3}$

$\frac{9}{3} = b$

$3 = b$

11. $\frac{3}{5} = r - \frac{2}{5}$

$+\frac{2}{5} \quad +\frac{2}{5}$

$1 = r$

12. $-\frac{3}{10} + a = \frac{2}{5}$

$+\frac{3}{10} \quad +\frac{3}{10}$

$a = \frac{2}{5} + \frac{3}{10}$

$a = \frac{7}{10}$

13. $\frac{1}{2} = x + \frac{3}{8}$

$-\frac{3}{8} \quad -\frac{3}{8}$

$\frac{1}{2} - \frac{3}{8} = x$

$\frac{1}{8} = x$

14. $y - \frac{2}{3} = \frac{5}{6}$

$+\frac{2}{3} \quad +\frac{2}{3}$

$y = \frac{5}{6} + \frac{2}{3}$

$y = \frac{5}{6} + \frac{4}{6}$

$y = \frac{9}{6} = \frac{3}{2}$

15. $c + \frac{1}{4} = \frac{7}{12}$

$-\frac{1}{4} \quad -\frac{1}{4}$

$c = \frac{7}{12} - \frac{1}{4}$

$c = \frac{7}{12} - \frac{3}{12}$

$c = \frac{4}{12}$

$c = \frac{1}{3}$

16. $8 + 6x = 50$

$-8 \quad -8$

$6x = 42$

$x = 7$

17. $-3n + 48 = 0$

$-48 \quad -48$

$\frac{-3n}{-3} = \frac{-48}{-3}$

$n = 16$

18. $28 + 6q = 28$

$-28 \quad -28$

$\frac{6q}{6} = \frac{0}{6}$

$q = 0$

19. $-26 = 6t - 2$

$+2 \quad +2$

$\frac{-24}{6} = \frac{6t}{6}$

$-4 = t$

20. $-17 + 3b = -9$

$+17 \quad +17$

$\frac{3b}{3} = \frac{8}{3}$

$b = \frac{8}{3}$

21. $-28 + 17w = -11$

$+28 \quad +28$

$\frac{17w}{17} = \frac{17}{17}$

$w = 1$

22. $61 = 5y + 56$

$-56 \quad -56$

$5 = 5y$

$1 = y$

23. $28h - 15 = 15$

$+15 \quad +15$

$\frac{28h}{28} = \frac{30}{28}$

$h = \frac{15}{14}$

24. $156 = 8u - 132$

$+132 \quad +132$

$288 = 8u$

$\frac{288}{8} = u$

$36 = u$

$\frac{288}{8} = \frac{144}{4} = \frac{6 \cdot 6 \cdot 4}{4}$

25. $-111 = 9a - 12$

$+12 \quad +12$

$\frac{-99}{9} = \frac{9a}{9}$

$-11 = a$

26. $-44 = 26d - 200$

$+200 \quad +200$

$\frac{156}{26} = \frac{26d}{26}$

$\frac{156}{26}$ $100 \to 50$, $26 \to 13$ $= \frac{78}{13}$

$\frac{156}{26} = d$

$\frac{78}{13} = d$

27. $-44k - 2 = -6$

$+2 \quad +2$

$\frac{-44k}{-44} = \frac{-4}{-44}$

$k = \frac{1}{11}$

28. $\frac{k}{8} + 6 = -3$

$-6 \quad -6$

$8 \times \frac{k}{8} = -9 \times 8$

$k = -72$

29. $20 = \frac{4n}{7} + 8$

$-8 \quad -8$

$\left(\frac{7}{4}\right)12 = \frac{4n}{7}\left(\frac{7}{4}\right)$

$21 = n$

30. $15 - \frac{3}{2}x = 12$

$-15 \quad -15$

$\left(\frac{2}{3}\right)-\frac{3}{2}x = -3\left(\frac{2}{3}\right)$

$x = 2$

31. $\frac{4}{7} + 2m = 2$

$-\frac{4}{7} \quad -\frac{4}{7}$

$2m = \frac{2}{1} - \frac{4}{7}$

$2m = \frac{14}{7} - \frac{4}{7}$

$\left(\frac{1}{2}\right)2m = \frac{10}{7}\left(\frac{1}{2}\right)$

$m = \frac{5}{7}$

32. $2z + 5 = \frac{9}{5}$

$-5 \quad -5$

$2z = \frac{9}{5} - \frac{5}{1}$

$2z = \frac{9}{5} - \frac{25}{5}$

$\left(\frac{1}{2}\right)2z = -\frac{16}{5}\left(\frac{1}{2}\right)$

$z = -\frac{8}{5}$

33. $\frac{7a}{6} + \frac{4}{3} = \frac{1}{3}$

$-\frac{4}{3} \quad -\frac{4}{3}$

$\frac{7a}{6} = \frac{-3}{3}$

$\left(\frac{6}{7}\right)\frac{7a}{6} = -1\left(\frac{6}{7}\right)$

$a = -\frac{6}{7}$

34. 29 is the sum of r and 54. Solve for r.

① EQN: $29 = r + 54$

$-54 \quad -54$

$-25 = r$

54
−29
25

35. 24 more than a number is 80. Find the number.

① LET x BE THE UNKNOWN NUMBER.

$x + 24 = 80$

$-24 \quad -24$

$x = 56$

36. When 24 is subtracted from b, the result is -80. Find b.

① EQN: $b - 24 = -80$

$+24 \quad +24$

$b = -56$

37. 12 less than k is -8. Find k.

① EQN $k - 12 = -8$

$+12 \quad +12$

$k = 4$

38. 48 is equal to eight times the quantity r minus 9. Find r.

① EQN $48 = 8r - 9$

$+9 \quad +9$

$\frac{57}{8} = \frac{8r}{8}$

$\frac{57}{8} = r$

39. Four less than one-fifth of a number is -16. What is the number?

① EQN: $\frac{1}{5}x - 4 = -16$

$+4 \quad +4$

$5 \times \left(\frac{1}{5}x\right) = (-12) \times 5$

$x = -60$

40. When 86 is subtracted from ten times a certain number, the result is 34. What is the number?

① EQN. $10N - 86 = 34$

$+86 \quad +86$

$\frac{10N}{10} = \frac{120}{10}$

$N = 12$

41. When 70 is subtracted from four times a certain number, the result is -10. What is the number?

① $4N - 70 = -10$

$+70 \quad +70$

$4N = 60$

$N = \frac{60}{4} = 15$

42. Ten less than two-thirds of a number is 20. What is the number?

① $\frac{2}{3}N - 10 = 20$

$+10 \quad +10$

$\left(\frac{3}{2}\right)\frac{2N}{3} = 30\left(\frac{3}{2}\right)$

$N = 45$

43. Fourteen minus half a number is -31. What is the number?

① $14 - \frac{1}{2}N = -31$

$-14 \quad -14$

② $-\frac{1}{2}N = -45$

$\left(\frac{-2}{1}\right)\frac{-1}{2} \times N = -45\left(\frac{-2}{1}\right)$

$N = 90$

44. If you take the number 3 and add it to itself "x" number of times and then add 17 at the very end, the sum will be 110. How many times did you add the 3 to itself?

$3+3+3+3+3 = 5(3)$

$3+3+3+3 = 4(3)$

$3+3+3+\ldots\ldots\ldots+3+3+3+3 = x(3)$

$3x + 17 = 110$

$-17 \quad -17$

$3x = 93$

$x = \frac{93}{3} = 31$

45. Jimmy got a bottle of jelly beans from his mom and had to split it equally with his two brothers. When Jimmy complained that he doesn't have enough, his younger brother gave him 20 more. If Jimmy now has 113 jelly beans, how many were originally in the bottle?

93

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93

93

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x $\quad$ x

$x + 20$ $\quad$ $x - 20$

$x + 20 = 113$

$x = 93$

Math 8 HW 11.2 Solving Two Step Eq's Mr. Young 5/21/2013

Answer List

1. -7	2. 1	3. -8
4. 11	5. -6	6. -11
7. -42	8. 2	9. 4
10. 3	11. 1	12. $\frac{7}{10}$
13. $\frac{1}{8}$	14. $\frac{3}{2}$	15. $\frac{1}{3}$
16. 7	17. 16	18. 0
19. -4	20. $\frac{8}{3}$	21. 1
22. 1	23. $\frac{15}{14}$	24. 36
25. -11	26. 6	27. $\frac{1}{11}$
28. -72	29. 21	30. 2
31. $\frac{5}{7}$	32. $-\frac{8}{5}$	33. $-\frac{6}{7}$
34. -25	35. 56	36. -56
37. 4	38. 15	39. -60
40. 12	41. 15	42. 45
43. 90	44. 90	45. 90

Catalog List

1. ALG GA 26	2. ALG GA 50	3. ALG GA 25
4. ALG GA 52	5. ALG GA 53	6. ALG GA 54
7. ALG GA 69	8. ALG GA 133	9. ALG GA 134
10. ALG GA 135	11. ALG GA 136	12. ALG GA 137
13. ALG GA 138	14. ALG GA 139	15. ALG GA 140
16. ALG GC 18	17. ALG GC 15	18. ALG GC 26
19. ALG GC 35	20. ALG GC 63	21. ALG GC 70
22. ALG GC 71	23. ALG GC 76	24. ALG GC 80
25. ALG GC 85	26. ALG GC 87	27. ALG GC 92
28. ALG GC 98	29. ALG GC 103	30. ALG GC 104
31. ALG GC 116	32. ALG GC 118	33. ALG GC 141
34. ALG HA 1	35. ALG HA 13	36. ALG HA 21
37. ALG HA 39	38. ALG HA 103	39. ALG HA 115
40. ALG HA 125	41. ALG HA 126	42. ALG HA 116
43. ALG HA 102	44.	45.

i) $3x - 9 = 13$
$+9 \quad +9$
$\frac{3x}{3} = \frac{22}{3}$

ii) $\frac{5x}{3} + 9 = 17$
$-9 \quad -9$

$\frac{3x}{3} = \frac{22}{3}$

$x = \frac{22}{3}$

Reverse PEMDAS solving

① multiply by 3 ① Add 9

② subtract 9 ② Divide by 3

iii) $7x - 5 = 20$

$+5 \quad +5$

$7x = 25$

$x = \frac{25}{7}$

$-9 \quad -9$

$\left(\frac{5}{3}\right)\frac{3x}{5} = 8\left(\frac{3}{5}\right)$

$x = \frac{24}{5}$

$x = 4.8$

iv) $\frac{3x}{8} + 9 = 15$

$-9 \quad -9$

$\left(\frac{8}{3}\right)\frac{3x}{8} = 6\left(\frac{8}{3}\right)$

$x = 16$