Homework #18

Solve

1. $x + y = 4$
   and $2x + y = 7$

2. $x - y = 5$
   and $x + 3y = 17$

3. $3x + 2y = 7$
   and $2x + 4y = 18$

4. $5x + 2y = 10$
   and $2x + 3y = -7$

5. Two pigs and a cow cost $500. A pig and 2 cows cost $760. What does a pig cost?

6. A cow costs $200 more than a pig. Two pigs and 3 cows cost $900. What is a pig?

7. $a + b = 10$
   and $a + 2b = 18$

8. $a - b = 5$
   and $3a + b = 25$

9. $3a + 2b = 2$
   and $6a + 3b = 9$

10. $a + 2b = 4$
    and $2a + 3b = 5$

11. Bill and Ted together have $650. Bill has $220 less than Ted. How much does Ted have?

12. Bill has *at least* 20 credits more than Ted. Together they have 145 credits. What is the least credits that Bill can have?

13. $x = 4 + y$
    and $2x = 17 + y$

14. $k - 5 = t$
    and $2k + 4t = 40$

15. $3p + 5q = 34$
    and $p + 4q = 30$

16. $3a + 2b = 22$
    and $2a + 3b = 23$

17. Abe is two years younger than Jill. Their ages added are 68. How old is Abe?

18. Abe and Jill work 9 hours total and earn $210. Each hour Abe earns $20 and Jill earns $25. How many hours does Abe work?

Answers Homework #18

Solve: Note: these must be solved algebraically – guess and check is not acceptable.

1. $x + y = 4$

   and $2x + y = 7$

   $x = 3, \ y = 1$

2. $x - y = 5$

   and $x + 3y = 17$

   $x = 8, \ y = 3$

3. $3x + 2y = 7$

   and $2x + 4y = 18$

   $x = -1, \ y = 5$

4. $5x + 2y = 10$

   and $2x + 3y = -7$

   $x = 4, \ y = -5$

5. Two pigs and a cow cost $500. A pig and 2 cows cost $760. What does a pig cost?

   $2p + c = 500$

   and $p + 2c = 760$

   $p = \$80 \ (c = \$340)$

6. A cow costs $200 more than a pig. Two pigs and 3 cows cost $900. What is a pig?

   $p + 200 = c$

   and $2p + 3c = 900$

   $p = \$60 \ (c = \$260)$

7. $a + b = 10$

   and $a + 2b = 18$

   $a = 2, \ b = 8$

8. $a - b = 5$

   and $3a + b = 25$

   $a = 7.5, \ b = 2.5$

9. $3a + 2b = 2$

   and $6a + 3b = 9$

   $a = 4, \ b = -5$

10. $a + 2b = 4$

    and $2a + 3b = 5$

    $a = -2, \ b = 3$

11. Bill and Ted together have $650. Bill has $220 less than Ted. How much does Ted have?

    $B + T = 650$

    and $B + 220 = T$

    $T = \$435 \ (B = \$215)$

12. Bill has *at least* 20 credits more than Ted. Together they have 145 credits. What is the least credits that Bill can have?

    $B + T = 145$

    and $B + 20 > T$

    $B > 62.5 \ \Rightarrow$ at least 63

13. $x = 4 + y$

    and $2x = 17 + y$

    $x = 13, \ y = 9$

14. $k - 5 = t$

    and $2k + 4t = 40$

    $k = 10, \ t = 5$

15. $3p + 5q = 34$

    and $p + 4q = 30$

    $p = -2, \ q = 8$

16. $3a + 2b = 22$

    and $2a + 3b = 23$

    $a = 4, \ b = 5$

17. Abe is two years younger than Jill. Their ages added are 68. How old is Abe?

    $A + J = 68$

    and $A + 2 = J$

    $A = 33 \ (J = 35)$

18. Abe and Jill work 9 hours total and earn $210. Each hour Abe earns $20 and Jill earns $25. How many hours does Abe work?

    $A + J = 9$

    and $20A + 25J = 210$

    $A = 3$ hours $(J = 6)$

Note that the word problems **must** have **two algebraic equations** (although they can be variants on the ones shown). Merely showing that the numerical answers work is **never** sufficient.