HW106

P521

1. $-3, -1.5, 0, 1.5, 3$

   1st term: -3

   c.d. $+1.5$

2. $2, 6, 10, 14, 18$

   $S_1\ S_2\ S_3\ S_4\ S_5$

3. a) $1+2+2+2+3+2+4+2$

   $3+4+5+6$

   $7+11$

   (18)

   b) $1^2-3+2^2-3+3^2-3$

   $-2+1+6$

   (5)

4. $u_{50} = 6 \cdot 50 = 300$

   $S_{50} = \frac{50(6+300)}{2} = 7{,}650$

5. [illegible]

6. a) $u_{75} = 2(75)-1 = 149$

   b) $u_1 = 2(1)-1 = 1$

   $u_{75} = 149$

   $S_{75} = \frac{75(1+149)}{2} = 5{,}625$

   c) $u_{20} = 2(20)-1 = 39$

   $u_{75} = 149$

   $n = 55$

   $S_{55} = \frac{55(39+149)}{2} = 5{,}170$

7. a) $y = 5x - 1$

   $y = 5(46) - 1$

   $y = 229$

   b) $u_n = 5n - 1$

   c) $S_n = \frac{n(u_1+u_n)}{2}$

   $S_{46} = \frac{46(4+229)}{2}$ →

   $\boxed{S_{46} = 5{,}359}$

Worksheet

2. *hint find the rule 1st

   $u_1 = 3$

   $u_n = 4n-1$

   $u_{20} = 4(20)-1 = 79$

   $S_{20} = \frac{20(3+79)}{2} = \boxed{820}$

6. *hint find what n value where

   $u_n = 101$

   $u_n = 3n+2$

   $100 = 3n+2$

   $99 = 3n$

   $33 = n$

   $S_{33} = \frac{33(5+101)}{2}$

   $\boxed{S_{33} = 1{,}749}$

12. $S_n = \frac{n(u_1+u_n)}{2}$

    $172 = \frac{n(4+39)}{2}$

    $344 = 43n$

    $\boxed{8 = n}$

Arithmetic Series – Answers

2. $S_{20} = 820$

3. $S_{50} = 3087.5$

4. $S_{40} = -1460$

5. $S_{17} = 476$

6. $S_{33} = 1749$

7. $S_{121} = 2420$

8. 160

9. −630

10. 135

11. $S_7 = 203$

12. $n = 8$

13. $u_{10} = 33.5$