099 §1.1 #s 1-39, 43-57

#s 1-14 Find the next number/term.

(1) 1, 2, 3, 4, ... [5] IN

(2) 0, 1, 2, 3, ... [4] Whole #s

(3) 2, 4, 6, 8, ... [10] Even #s

(4) 1, 3, 5, 7, ... [9] odd #s

(5) 1, 4, 9, 16, ... [25] (Perfect) squares

(6) 1, 8, 27, 64, ... [125] (Perfect) cubes

(7) 1, 8, 15, 22, ..., [29]

(9) 1, 8, 27, 64, ... [125]

(11) $\Delta, \triangleleft, \triangledown, \triangleright, \ldots$ [Δ]

(13) $\Delta, \square, \bigcirc, \Delta, \square, \ldots$ [$\bigcirc$]

#s 15-24 Arithmetic Sequences. Find the next term

(15) 1, 5, 9, 13, ... [17]

5-1=4, 9-5=4

(17) 1, 0, -1, ... [-2]

0-1=-1, -1-0=-1

099 S 11.1 #s 19–39, 43–57

(19) 5, 2, −1, ... $\boxed{-4}$

$2-5=-3,\ -1-2=-3$ ✓

(21) $\frac{1}{4}, 0, -\frac{1}{4}, \ldots$ $\boxed{-\frac{2}{4}=-\frac{1}{2}}$

$0-\frac{1}{4}=-\frac{1}{4}$

(23) $1, \frac{3}{2}, 2, \ldots$ $2+\frac{1}{2}=\frac{4}{2}+\frac{1}{2}=\boxed{\frac{5}{2}}$

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

~~#s~~ s 25–36 Geometric sequences Find the next term

(25) 1, 3, 9, ... $(3)(9)=\boxed{27}$

$\frac{3}{1}=\frac{9}{3}=3$

(27) 10, −30, 90, ... $\boxed{-270}=(90)(-3)$

$\frac{-30}{10}=\frac{90}{-30}=-3$

(29) $1, \frac{1}{2}, \frac{1}{4}, \ldots$ $\left(\frac{1}{4}\right)\left(\frac{1}{2}\right)=\boxed{\frac{1}{8}}$

$\frac{\frac{1}{2}}{1}=\frac{\frac{1}{4}}{\frac{1}{2}}=\frac{1}{4}\cdot\frac{2}{1}=\frac{1}{2}$

(31) 20, 10, 5, ... $(5)\left(\frac{1}{2}\right)=\boxed{\frac{5}{2}}$

$\frac{10}{2}=\frac{5}{10}=\frac{1}{2}$

(33) 5, −25, 125 $(125)(-5)=\boxed{-625}$

$r=-5$

099 §11 #s 35, 37, 43-57

(35) $1, -\frac{1}{5}, \frac{1}{25}, \ldots$ $\quad \left(\frac{1}{25}\right)\left(-\frac{1}{5}\right) = \boxed{-\frac{1}{125}}$

$$\frac{-\frac{1}{5}}{1} = \frac{\frac{1}{25}}{-\frac{1}{5}} = \frac{1}{25}\cdot\left(-\frac{5}{1}\right) = -\frac{1}{5} = r$$

(37) Find the next # in the sequence 4, 8, ...

if the sequence is ...

(a) ... arithmetic: $8-4 = 4$ = common Difference.

$8+4 = \boxed{12 = \text{next term}}$

(b) ... geometric: $\frac{8}{4} = 2 = r$ = common Ratio

$(8)(2) = \boxed{16 = \text{next term}}$

#s 43-57 Simplify the expression.

(43) (a) $3 \cdot 5 + 4 = 15 + 4 = \boxed{19}$

(b) $3(5+4) = 3(9) = \boxed{27}$

(c) $3 \cdot 5 + 3 \cdot 4 = 15 + 12 = \boxed{27}$

ogq 1.1 #s 45-57

45 (a) $6+3\cdot4-2 = 6+12-2 = \boxed{16}$

(b) $6+3(4-2) = 6+3(2) = 6+6 = \boxed{12}$

(c) $(6+3)(4-2) = (9)(2) = \boxed{18}$

47 (a) $(7-4)(7+4) = (3)(11) = \boxed{33}$

$(a-b)(a+b) = a^2-b^2$!

(b) $7^2-4^2 = 49-16 = \boxed{33}$

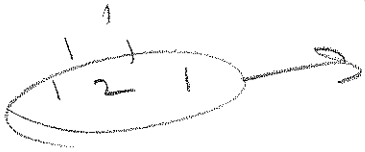
49 (a) $(5+7)^2 = (12)^2 = \boxed{144}$

$(a+b)(a+b) = a^2+2ab+b^2$

(b) $5^2+7^2 = 25+49 = \boxed{74}$

(c) $5^2+2\cdot5\cdot7+7^2 = 25+70+49 = \boxed{144}$

This is Pascal's triangle !



$(5+7)^2 = 5^2 + 2\cdot5\cdot7 + 7^2$

1 2 1

51 (a) $2+3\cdot2^2+3^2 = 2+12+9 = \boxed{23}$

(b) $2+3(2^2+3^2) = 2+3(4+9) = 2+3(13) = 2+39 = \boxed{41}$

(c) $(2+3)(2^2+3^2) = 5(4+9) = 5(13) = \boxed{65}$

099 8.1, 1 #s 53, 55, 57

53 (a) $40 - 10 \div 5 + 1$

$= 40 - \frac{10}{5} + 1 = 40 - 2 + 1 = 39$

(b) $(40 - 10) \div 5 + 1 = 30 \div 5 + 1 = 6 + 1 = 7$

(c) $(40 - 10) \div (5 + 1) = 30 \div 6 = \frac{30}{6} = 5$

55 (a) $40 + [10 - (4 - 2)] = 40 + [10 - 2] = 40 + 8 = 48$

(b) $40 - 10 - 4 - 2 = 30 - 6 = 24$

~~(c)~~

57 (a) $3 + 2(2 \cdot 3^2 + 1) = 3 + 2(2 \cdot 9 + 1)$ This is not like pre test!

$= 3 + 2(18 + 1) = 3 + 2(19) = 3 + 38 = 41$

(b) $(3 + 2)(2 \cdot 3^2 + 1) = 5(18 + 1) = 5(19) = 95$