1. Change the following Roman numerals into modern Hindu-Arabic numerals:

   (a) CLXXXIX (b) MMMXLVI (c) MMDCCXCIX

2. (a) Find the difference of 124 and 36.
   (b) Find the product of 19 and 43.
   (c) Find the sum of 47562 and 567.
   (d) Find the quotient of 495 and 15.

3. Evaluate:

   (a) $56 - 16 \div 4$
   (b) $6 \times 32 \div (2+6)$
   (c) $6 \times 32 \div 2 + 6$
   (d) $\dfrac{116+68}{65-42}$
   (e) $112 \div (28 \div 4)$
   (f) $213 - (88-29) \times 3$
   (g) $332 - 9 \times 4 + 30 \div 6$
   (h) $11 \times 3^2 - 2^4$
   (i) $\sqrt{169} - \sqrt{64}$
   (j) $8 + 2^5$
   (k) $\dfrac{700-124}{12 \times 8}$
   (l) $112 \div 28 \div 4$

4. Show all your working and complete the following long division questions:

   (a) $3588 \div 23$ (b) $15\,543 \div 32$ (c) $48\,613 \div 47$

5. (a) Rewrite **without** parentheses to illustrate the distributive property:
   (i) $8 \times (3+9)$
   (ii) $35 \times (21 - 4{\cdot}8)$
   (iii) $a(b+c+d)$
   (b) Rewrite **with** parentheses to illustrate the distributive property:
   (i) $16 \times 5 - 16 \times 22$
   (ii) $T \times U + T \times V$
   (c) State whether the sentence is true or false: $6 \times (8 \times 3) = (3 \times 6) \times 8$.

6. Use the distributive law to factorise then evaluate:
   (a) $225 \times 25 - 25 \times 25$
   (b) $13{\cdot}8 \times 37 + 37 \times 36{\cdot}2$

7. Write as a mathematical expression using symbols:
   (a) Eighteen is greater than four.
   (b) The cube root of one hundred and twenty five is less than three squared.
   (c) Ninety four and ninety nine one hundredths is approximately equal to ninety five.
   (d) Seven is not equal to fifteen divided by two.

BR

ARITHMETIC – SOLN

1a) CLXXXIX
$100 + 80 + 9 = 189$ ✓

b) MMMXLVI
$3000 + 40 + 6 = 3046$ ✓

c) MMDCCXCIX
$2000 + 700 + 90 + 9 = 2799$ ✓

2a) $124 - 36 = 88$ ✓

b) $43 \times 19 = 43 \times (20-1)$
$= 43 \times 20 - 43$
$= 860 - 43$
$= 817$ ✓

c) $47562 + 567 = 48129$ ✓

d)
$$\begin{array}{r} 033 \\ 15\overline{)495} \\ 45\downarrow \\ \hline 45 \\ 45 \\ \hline 0 \end{array}$$ ✓

3a) $56 - 16 \div 4 = 56 - 4$
$= 52$ ✓

b) $6 \times 32 \div (2+6) = 6 \times 32 \div 8$
$= 192 \div 8$
$= 24$ ✓

$32 \times 6 = 192$

$8 \overline{)192}$ → 24

c) $6 \times 32 \div 2 + 6 = 192 \div 2 + 6$
$= 96 + 6$
$= 102$ ✓

d) $\frac{116+68}{65-42} = \frac{184}{23}$
$= 8$ ✓

$23 \overline{)184}$ → 008

e) $112 \div (28 \div 4) = 112 \div 7$
$= 16$ ✓

$7 \overline{)112}$ → 16

f) $213 - (88-29) \times 3 = 213 - 59 \times 3$
$= 213 - 177$
$= 36$ ✓

g) $332 - 9 \times 4 + 30 \div 6 = 332 - 36 + 5$
$= 301$ ✓

h) $11 \times 3^2 - 2^4 = 11 \times 9 - 16$
$= 99 - 16$
$= 83$ ✓

i) $\sqrt{169} - \sqrt{64} = 13 - 8$
$= 5$ ✓

j) $8 + 2^5 = 8 + 32$
$= 40$ ✓

k) $\frac{700-124}{12 \times 8} = \frac{576}{96}$
$= \frac{144}{24}$
$= \frac{36}{6}$
$= 6$ ✓

l) $112 \div 28 \div 4 = 4 \div 4$
$= 1$ ✓

$28 \overline{)112}$ → 004

4a)
$$\begin{array}{r} 0156 \\ 23\overline{)3588} \\ 23\downarrow \\ \hline 128 \\ 115\downarrow \\ \hline 138 \\ 138 \\ \hline 0 \end{array}$$
✓✓

b)
$$\begin{array}{r} 00485 \text{ r } 23 \\ 32\overline{)15543} \\ 128\downarrow \\ \hline 274 \\ 256\downarrow \\ \hline 183 \\ 160 \\ \hline 23 \end{array}$$
✓✓

c)
$$\begin{array}{r} 01034 \text{ r } 15 \\ 47\overline{)48613} \\ 47\downarrow\downarrow \\ \hline 161 \\ 141\downarrow \\ \hline 203 \\ 188 \\ \hline 15 \end{array}$$
✓✓

5a) i) $8 \times (3+9) = 8 \times 3 + 8 \times 9$ ✓

ii) $35 \times (21 - 4.8) = 35 \times 21 - 35 \times 4.8$ ✓

iii) $a(b+c+d) = a \times b + a \times c + a \times d$ ✓✓

b) i) $16 \times 5 - 16 \times 22 = 16 \times (5 - 22)$ ✓

ii) $T \times U + T \times V = T \times (U + V)$ ✓

c) True as we can multiply in any order. ✓

6a) $225 \times 25 - 25 \times 25 = 25 \times (225 - 25)$ ✓
$= 25 \times 200$
$= 5000$ ✓

b) $13.8 \times 37 + 37 \times 36.2 = 37 \times (13.8 + 36.2)$ ✓
$= 37 \times 50$
$= 1850$ ✓

7a) $18 > 4$ ✓

b) $\sqrt[3]{125} < 3^2$ or $5 < 9$ ✓

c) $94\frac{99}{100} \doteq 95$ ✓

d) $7 \neq 15 \div 2$ ✓