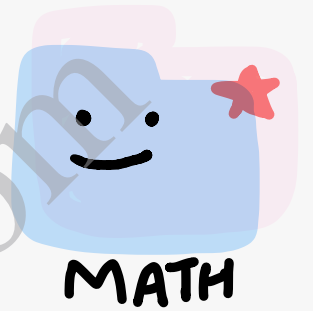


Squares, Cubes And Their Roots

Ex. 3.3



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Ex. 3.3

3 a. $23 \overline{)529}$

23

$$\sqrt{529} = \sqrt{23 \times 23}$$

$$= 23$$

b. $2 \overline{)5184}$

$$2 \overline{)2592}$$

$$2 \overline{)1296}$$

$$2 \overline{)648}$$

$$2 \overline{)324}$$

$$2 \overline{)162}$$

$$3 \overline{)81}$$

$$3 \overline{)27}$$

$$3 \overline{)9}$$

3

$$\sqrt{5184} = \sqrt{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3}$$

$$= 2 \times 2 \times 2 \times 3 \times 3$$

$$= 72$$

c. $5 \overline{)9025}$

$$5 \overline{)1805}$$

$$19 \overline{)361}$$

19

$$\sqrt{9025} = \sqrt{5 \times 5 \times 19 \times 19}$$

$$= 5 \times 19$$

$$= 95$$

b.

$$\begin{array}{r|l}
 & 2009 \\
 2 & \underline{4036081} \\
 +2 & -4 \\
 \hline
 40 & 3 \\
 +0 & -0 \\
 \hline
 400 & 360 \\
 +0 & -0 \\
 \hline
 4009 & 36081 \\
 & \underline{-36081} \\
 & 0
 \end{array}$$

$$\sqrt{4036081} = 2009$$

c.

$$\begin{array}{r|l}
 & 12120 \\
 1 & \underline{146894400} \\
 +1 & -1 \\
 \hline
 22 & 46 \\
 +2 & -44 \\
 \hline
 241 & 289 \\
 +1 & -241 \\
 \hline
 2422 & 4844 \\
 & \underline{-4844} \\
 & 0
 \end{array}$$

$$\sqrt{146894400} = 12120$$

$$\begin{array}{r}
 \text{vd.} \quad \quad \quad 1554 \\
 \hline
 1 \quad 2414916 \\
 +1 \quad -1 \\
 \hline
 25 \quad 141 \\
 +5 \quad -125 \\
 \hline
 305 \quad 1649 \\
 +5 \quad -1525 \\
 \hline
 3104 \quad 12416 \\
 \quad \quad -12416 \\
 \hline
 \quad \quad \quad 0
 \end{array}$$

$$\sqrt{2414916} = 1554$$

8. Let the no. of soldiers in each row = x
 \therefore No. of soldiers in each column = x
 Total no. of soldiers = 3481

$$\therefore x \times x = 3481$$

$$x^2 = 3481$$

$$x = \sqrt{3481}$$

$$x = 59$$

$$\begin{array}{r}
 \quad \quad \quad 59 \\
 \hline
 5 \quad 3481 \\
 +5 \quad -25 \\
 \hline
 109 \quad 981 \\
 \quad \quad -981 \\
 \hline
 \quad \quad \quad 0
 \end{array}$$

\therefore No. of soldiers in each row = 59

$$\begin{array}{r}
 11. \quad \quad \quad 74 \\
 \hline
 7 \quad 5608 \\
 +7 \quad -49 \\
 \hline
 144 \quad 708 \\
 \quad \quad -576 \\
 \hline
 \quad \quad \quad 132
 \end{array}$$

$$74^2 = 5476$$

$$75^2 = 5625$$

$$74^2 < 5608 < 75^2$$

\therefore Required least number to be added = $5625 - 5608$
 $= 17$

12.

$$\begin{array}{r|l} & 38 \\ 3 & \underline{1456} \\ +3 & -9 \\ \hline 68 & 556 \\ & \underline{-544} \\ & 12 \end{array}$$

∴ Required least number to be subtracted = 12

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