Grammar School,
PONTARDAWE.

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Form... III AL

Subject... Arithmetic Homework

1. £ .. s .. d
         2 .. 4
    _____
          18×
    _____
    2 .. 2 .. 0   ans. £2.2s   ✓

2. cwt - qr .. lbs
         1 .. 1 .. 11
    14) 18 .. 3 .. 14   ans. 1cwt 1 qr 11 lbs ✓

3. £ .. s .. d
         4 .. 0
    _____
          10×
    _____
    6 .. 0 .. 0   ans £6.   ✗

4. £ .. s .. d
         0 .. 1 .. 3   ans 1s 3d ✓
    21) 1 .. 6 .. 3

5. £ .. s .. d
    1 .. 16 .. 7
    _____
              9×
    _____
    16 .. 9 .. 3

    £ .. s .. d
    16 .. 9 .. 3   ) 3
    _____ (2×
    _____
    32 .. 18 .. 6   ans £32 . 18s 6d   ✗

⑦

1.
£ ..	S ..	d
8 ..	3 ..	6
13 ..	4 ..	0 +
21	7 ..	6

£ ..	s ..	d
2 ..	7 ..	6

9)21 .. 7 .. 6   ans. £2. 7/6d ⓧ

2.
£ ..	s ..	d
3 ..	12 ..	4
24	24	24 X
86 ..	16 ..	0

72   240   96
14   48
86   28,8
       9
      296

£ ..	s ..	d
125 ..	10 ..	0
86 ..	16	0 — ans. £38. 14₀
38 ..	14 ..	0

✓

3.
£ ..	S ..	d
17 ..	6
72 ..	72
63	0 ..	0

11,90 12|432
  34   36
1224
  36
24)1269
   63

£ ..	5 ..	d
1 ..	1 ..	0
72 X
75 ..	12	0

£ ..	S ..	d
85 ..	0 ..	0
63 ..	0 ..	0
12 ..	0 ..	0 ans £ 12.

12
↑

4.
£ ..	S ..	3d
79 ..	12 ..	1
20	1580	6368
1580	1592	6369 ans 6369 (3d)
	4
	6368

✓

£   £ ·· s ·· d

       8 ·· 16 ·· 11 ∧ ↓ cf ✓

52) 460 ·· 0 ·· 0

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(14) 8t· lbs.   47 st·· 6 lb = 11 qt ·· 12 lbs
    11 · 8   4
    12 · 12   Ans 11 qt ··12 lbs.
    12 · 2
    10 · 12
    47 · 6

✓

15 A·28 8 B = 28   8
    3 5 1+ 5,6 4+
  9) 63 9 12) 84 12 Ans A = 7, B = ·7
    7   7

✓

16   40 lbs   96 lbs = 12 lbs
      8 lbs   8 lbs
    48 lbs   Ans 12 lbs
    96 lbs

✓

(19)

6 46   368
   8 x   11 - 7) 357
  368 357   51 ans 51 ✓

7 7d   4 s 9d
   6 x   3 s 6d - 3) 1 s 3 d ✓
  42 d = 3 s 6d 1 s 3d   5 d ans 5d

8 $250d = £1. 0_{s}10d$ ∴ £ s d
$250(1\frac{1}{2}d) = £1.11s 3d$ 1 .. 11 .. 3
                                    1 .. 0 .. 10
                                    10 .. 5   ans 10 s 5d

9   yrs .. mths.
          13 .. 5
    17)228 . 1   ans 13 yrs. 5 mths

10   3   3   36
      9)27   12x   1t
             36   37   ans 37

(10)

        P. 56 E₁ R xxv   26 ² (3 - 8)

6 11 = ½ ∴   11   **9** yrs.. mths
                7 x   17 .. 3
                77   ans 77   16 .. 9.
                                      16 .. 7.
7 t'ons.. cwt .. qr   17 .. 5
      2 .. 13 .. 1   then ..2
            17   17 x   5)84 .. 2
      45 .. 5 .. 1   16 .. 10
      34   130   17   ans 16 yrs 10 mths
      11   91
            4
           225   **10**
                                    10)7
8   st .. lb .. oz   20
         0 ..   2 .. 2 r.6   ans 70
      36) 5 .. 6 .. 14

(10)   ans 2 lb 2 oz r 6.   (3)

263 at £2. 8s 9d

15.
$$£ - s - d$$
263 - 0 - 0 @ £1.

3

	£	s	d	
	526 - 0 - 0 @	£2.		
5s = ¼ of £1	131 -10 - 0 @	5s		
3s 6d = ½ of 5s	65 -10 - 0 @	2s 6d		
1s 3d = ½ of 2s 6d	32 -10 - 0 @	1s 3d		
	755 -10 - 0 @	£2. 8s 9d		

16.
1835 @ £1. 15s 5d

$$£ - s - d$$

	£	s	d	
10/- = ½ of £1	183 - 0 - 0 @	£1		
5/- = ½ of 10/-	91 - 10 - 0 @	10s		
5d = 1/12 of 5s	45 - 10 - 0 @	5s		
	3 - 15 - 0 @	5d		
	323 - 15 - 0	£1 15s 5d		

17.
176 tons at 14s 9d per ton

$$£ - s - d$$

	£	s	d	
10/- = ½ of £1	176 - 0 - 0 at £1.			
2/6 = ¼ of 10s	88 - 0 - 0 at	10s		
1/3 = ½ of 2/6	22 - 0 - 0 at	2 6		
1s = 1/20 of £1	11 - 0 - 0 at	1 3		
	- 11 - 0 at	1s		
	217 - 11 - 0	14s 9d		

(3)

1. 48 ans.

2. $\dfrac{6784}{4} = 1696 \times 3 = 5088$ ans. and 1696.

3. $5\frac{1}{2}y - 2y = 3\frac{1}{2}y$ $1\frac{1}{2}d + 1d = 2\frac{1}{2}d$ ans.

4. $\dfrac{6yd \quad 0' \quad 1''}{7} = 2' \ 7'' \times 3 = 7' \ 9''$ ans.

5. $60 \times 12 = 720$ $\dfrac{720}{45} = 16 \times 5 = 80 \text{ secs} = 1 \text{ hr } 20 \text{ min}$

$\quad$ = 1.20 p.m. ✗

_____

P.107 Ex X(k) Nos 1-5   1-2-62

1. $\dfrac{\frac{1}{5} + \frac{1}{4}}{20} = \dfrac{9}{20}$ $1 - \dfrac{9}{20} = \dfrac{11}{20}$ ans.

2. $\dfrac{\frac{1}{2} + \frac{1}{3}}{6} = \dfrac{5}{6}$ $1 - \dfrac{5}{6} = \dfrac{1}{6}$ ans.

3. $6 - \dfrac{8\frac{2}{5} - 2\frac{3}{6}}{8} = 5\frac{7}{8}$ ans.

4. $\dfrac{\frac{1}{6} + \frac{1}{8} + \frac{1}{10}}{120} = \dfrac{47}{120}$ $1 - \dfrac{47}{120} = \dfrac{73}{120}$ ans.

5. $\dfrac{\frac{1}{4} + \frac{1}{6}}{24} = \dfrac{10}{24} = \dfrac{5}{12}$ $1 - \dfrac{5}{12} = \dfrac{7}{12}$ ans.

(10)

P.111 Ex XI(g) No 46-50   8-2-62

46   $\dfrac{34}{45} \times \dfrac{57}{114}$ $\dfrac{19}{57} \times \dfrac{45}{34}$ $\dfrac{34}{45} \times \dfrac{57}{114}$?

47   $\dfrac{3}{4} \div \dfrac{3}{7} \div \dfrac{1}{2}$ $\dfrac{3}{4} \times \dfrac{7}{3} \times \dfrac{2}{1} = \dfrac{2}{1} = 2$ $3\frac{1}{4} \div 2\frac{1}{2}$

48   $\dfrac{2}{3} \times \dfrac{7}{4} = \dfrac{14}{12} = 1\frac{2}{12} = 1\frac{1}{6}$ $\dfrac{4}{5} \div \dfrac{2}{3}$

49   $\dfrac{3}{1} \times \dfrac{2}{1} = \dfrac{6}{1} = 6$ ans $\dfrac{4}{5} \times \dfrac{2}{1}$

50   $\dfrac{12}{\cancel{36}}{5} \quad \dfrac{13}{\cancel{7}}{1} = \dfrac{156}{5} = 31\frac{1}{5}$

(2)

P.114 Ex XLV No 1-5   15-2-62

1   $\dfrac{2}{3} + \dfrac{3}{4} = \dfrac{8+9}{12} = \dfrac{17}{12} = 1\frac{5}{12}$ $\dfrac{2+3}{3+4} = \dfrac{5}{7}$ $1\frac{5}{13} - \dfrac{5}{7}$ $1\dfrac{35-60}{84} = \dfrac{59}{84}$ ans

3   $36'' = 1$ yd $\dfrac{36}{6}$ ins $= 5$ ins $5 \times 5 = 25'' = 2$ ft 1 ins
ans 1 yd 2 ft 1 ins

3   $\dfrac{1}{5} \times \dfrac{2}{8}{5} = \dfrac{3}{3}$ ans

4   $\dfrac{20}{1} \times \dfrac{3}{1} = \dfrac{60}{1} = 60$ ans

(8)   5 $\dfrac{7}{2} \div \dfrac{7}{3}$ $\dfrac{7}{2} \times \dfrac{3}{7} = \dfrac{3}{2} = 1\frac{1}{2}$ $\dfrac{2\frac{1}{3} + 1\frac{1}{2}}{6}$ $3\frac{5}{6}$ ans

P 114 Ex XLVI Nos 6-10

6(i) $8\frac{3}{5} \times 7\frac{6}{7} = \frac{43}{5} \times \frac{55}{7}$ $\frac{66}{1} = 66$ ans   (ii) $3\frac{4}{17} \div 6\frac{4}{51} = \frac{55}{17} \times \frac{51}{310} = \frac{3}{5}$ ans

7. z ~ s ~ d

$10 - 8 \times 3\frac{5}{8}$
3

| 1 | 12 | 0 | 2 . 13 . 4
| | 6 | 8 |
| 1 | 18 | 8 | ans

8. $3\frac{1}{4} \div 2\frac{1}{32} = \frac{13}{4} \div \frac{65}{32} = \frac{13}{4} \times \frac{32}{65} = \frac{8}{5} = 1\frac{3}{5}$

9. $\frac{15}{119}$ $\frac{18}{143}$ $15 \times 6 = 90$ $18 \times 5 = 90$ $119 \times 90 = 10710$

$\frac{90}{10710}$ $\frac{90}{12870}$ 90 ans $\frac{90}{12870}$ = $\frac{18}{143}$ $\frac{90}{715}$

10. $\frac{\frac{1}{10} + \frac{3}{20}}{\frac{2}{20} + \frac{3}{20}} = \frac{5}{20} = \frac{1}{4}$ $1 - \frac{1}{4} = \frac{3}{4}$ ans

P 117 Ex RS1 Nos 7 and 9   P 117 last 10 Nos 3 and 9   8-3-62

7. $\frac{3}{4\frac{1}{2}} = \frac{3 \times 2}{4\frac{1}{2} \times 2} = \frac{6}{9}$ $\frac{2}{3\frac{1}{4}} = \frac{2 \times 4}{3\frac{1}{4} \times 4} = \frac{8}{13}$ $\frac{6}{9} \div \frac{8}{13} = \frac{2}{3}$ ans $\frac{2}{8} = \frac{8}{13}$ $\frac{26 - 24}{39} = \frac{2}{39}$

9. $\frac{\frac{1}{14} + \frac{1}{18}}{168} = \frac{26}{108} = \frac{13}{54}$

x

-62

$= \frac{2}{5}$

$\frac{4}{10}$

$3. \ \frac{15\overline{22}}{5} \times \frac{1}{5} = \frac{1522}{1} = 1522 \quad (ii) \ \frac{17}{9} \times \frac{7}{11} = \frac{119}{33} = 3\frac{20}{11}$ ✗

$9. \ \frac{3}{7} \div \frac{1}{3} = \frac{1}{7}$

P 85 1.2.3.4.5.

$1. \ 0.042 \times 1.5$

42
$18 \times$
420
$\underline{336 \times}$ ✓
$.0756$ ✓

$5. \ 98 \times .098.$

98
$\underline{98}$
8820
$\underline{784}$
9604 ✓

$2. \ 0.047 \times 180.$

180
$\underline{47}$
7200
$\underline{1260 \times}$ ✓
8.460 ✓

$3. \ 62.3 \times .059$

623
$\underline{59}$
31150
$\underline{5607 \times}$
3.6757 ✓

$4. \ 18.2 \times 0.072$

182
$\underline{72}$
12740
$\underline{364}$
1.3104 ✓

0710

3-62

x ✓

$= \frac{3}{39}$

(10)

P 87 No 28, 29, 31, 33.   Date

28 R.C $59.8 \div .023 = \frac{ee}{.03} \div \frac{6000}{3} = 2000.$ ✓

$$\begin{array}{r} 2600 \cdot \\ 23\overline{)59800} \\ 46 \\ \hline 138 \end{array}$$ ans 2600 ✓

29 R.C. $.798 \div 210 \cdot = \frac{8}{200} = \frac{1}{25} = .04$ ✓

$$\begin{array}{r} .0038 \\ 210\overline{)\cdot 798} \\ 630 \\ \hline 1680 \end{array}$$ ans .0038

31 R.C $1.058 \div 4.6 = \frac{1}{5} = .2$ ✓

$$\begin{array}{r} .23 \\ 46\overline{)1058} \\ 92 \\ \hline 138 \end{array}$$ ans .23

33 R.C $2385 \div 5.3 = \frac{3}{5} \div \frac{3}{50} = \frac{1}{25} = .04$ ✓

$$\begin{array}{r} .045 \\ 53\overline{)2385} \\ 212 \\ \hline 265 \end{array}$$ ans .045.

1. tons .. cwt .. lbs

        1   10   98   one 1 ton 10 cwt 98 lbs.
    141) 217 ..   13 ..   42
         141   1520 13776
          76   1533 13817
          20   1540 13818
        1520   123 ......
                 113
                 13776

3.   20 in
        18 in) 360   ans 19 cuts.

3.   62   R.C. = 6 × .04 = 600 × 4 = .2400
      37
      1860
       434
      .2294   ans .2294

5.   88   80   4400 - 4000 = 400 fruits   ans gain   £5.
     50   50
    4400.   4000.

7.   67   4891   R.C. = 7. × .07 × .7 = .3467
     73   . 73
    4690   342370
     201   14673
    4891   .357043   ans .357043

10

2   17 ft
    4 ft x
   68 sq. ft.   ans. 68 sq. ft.

4 (i) 623 (ii) 3.   ans.(i) 623 (ii) 3

5 R.C.= 2x ·007 = ·0014.   67
                              23
                            1340
                             201
                           ·001541

7   $\frac{37}{3}$ = 9 sq ft and 9 sq ft.

10 R.C. = $\frac{70}{8000}$ = ·00875.   ·0087   ans ·0087.
                              76.)·6612
                                  608
                                  532

⑨

(ii) 2 | 576 $2^6 \times 3^2$ = $\sqrt{2^6 \times 3}$ ans. $\sqrt{576} = 2^3 \times 3$
      2 | 288
      2 | 144
      2 | 72
      2 | 36
      2 | 18
      3 | 9
      3 | 3
          1

(iii)

2	676
2	338
13	169
13	13
	1

$2^2 \times 13^2$ $\sqrt{676} = 2 \times 13$ ans.

(iv)

2	1156
2	578
17	289
17	17
	1

$2^2 \times 17^2$ $\sqrt{1156} = 2 \times 17$ ans.

(v)

2	1764
2	883
3	441
3	147
7	49
7	7
	1

$2^2 \times 3^2 \times 7^2$ $\sqrt{1764} = 2 \times 3 \times 7$ ans.

P80 ,9, 10, 11, 25, 27

(10) 3) $2^2 \times 3^3$

$2^3 \times 3^2$

LCM! $2^3 \times 3^3 = 216$ ans 216 = 108

10 $2^2 \times 5$ $2 \times 2 \times 5$

$3^2 \times 7$ $3 \times 3 \times 7$

L.C.M. = $2^2 \times 3^2 \times 5 = 840$ ans 840

11 2^6

$2^4 \times 3^2 \times 5^2$

$2^6 \times 3^2 \times 5^2 = 14600$

25)

2 | 630	$2 \times 3^2 \times 5 \times 7$	2 | 432
3 | 315	$2^4 \times 33$	2 | 216
3 | 105	$2^4 \times 3^3 : 2^4 \times 3^3 \times 5 \times 7$	2 | 108
5 | 35		2 | 54
7 | 7		3 | 27
1		3 | 9
		3 | 3
		1

27)

2 | 468	$2^2 \times 3^2 \times 13$	2 | 552
2 | 234	$2^2 \times 3 \times 23$	2 | 276
3 | 117	$\therefore 2^2 \times 3^2 \times 13 \times 23$	2 | 138
3 | 39		3 | 69
13 | 13		23 | 23
1		1

(10)

P80 No 34-37   4-10-62

34)

2 | 12	2 | 30
2 | 6	3 | 15
3 | 3	5 | 5
1	1

$12 = 2^2 \times 3$

$30 = 2 \times 3 \times 5$

L.C.M $= 2^2 \times 3 \times 5 = 60$ ans $= 50$

35) $4 = 2^2$

$6 = 2 \times 3$

$8 = 2^3$

$10 = 2 \times 5$

L.C.M $= 2^3 \times 3 \times 5 = 120$ ans   2 mins

36)

37)

36.

3	21	3	27	5	35
7	7	3	9	7	7
1	3	3	1

$21 = 3 \times 7$

$27 = 3^3$

$35 = 5 \times 7$

L.C.M $= 3^3 \times 5 \times 7 = 945$ ans $=$ ~~705~~ (t. 9 in

37. $9 = 3^2$

$11 = 11$

$12 = 2^2 \times 3$

$15 = 3 \times 5$

L.C.M $= 3^2 \times 2^2 \times 5 \times 11 = 1980$ ans 1980 attrees.

⑩

Rev. Pap 3. P.87 No 2,3,5.   11-10-47.

2. $\dfrac{150}{20} = 6$ $2.0\frac{1}{2} \times 6 = 16\,0.6d.$ 19o 7d

       11o 4½d

$\dfrac{180}{3} = 60$ $\therefore 3.0\frac{3}{4} \times 5 = 19,7d.$ 18o 9d

          49 8½

$\dfrac{180}{4} = 45$ $\therefore 3\frac{3}{4}\,dg. = 11o 4\frac{1}{2}$

           £ - 5 - d

$\dfrac{5}{12} \times 180 = 75$ $\therefore 6\frac{1}{4}\,dg. = 18o 9d$ 2 - 9 - 8½

             46 - 6

ans. £1. 13o. 2½d ✗ 1 - 5 - 10½   1. 13 - 2½

3. 12. 55   3h10 50min.   3. 15.   3h0 20min $= \overset{5}{}$ days

  1· 3   1 55   40min.

  2 30   1h30

  3 50   3.50   1hr. 30min + 2 hours

   15   24   40min

  3h35   3 20   7lessons a day

        35 u   - with 35 × 12 = 420 lessons ans

5. $25 \times 15 = 375$ $25\overline{)675}$

         10   25 sq.ins.

and 10 feet over and there are 25 sq ins unused.

Circled: 8

P 103 Ex 37a Nos 16, 17, 18.   8-10-62

16. $\dfrac{29}{55} + \dfrac{3}{11}$

                 $55 - 29 = 16$ $\dfrac{48}{16} = 3$ $5.5 \times 3 = 16.5$

$\dfrac{29 + 15}{55} = \dfrac{29}{55}$

         Ans 16.5 gall ✓

17. $\dfrac{1}{8} + \dfrac{1}{6} = \dfrac{7}{24}$ Ans ① $= \dfrac{7}{24}$ and ② $= \dfrac{5}{12}$

$\dfrac{7}{\underset{12}{24}} \times \dfrac{2}{1} = \dfrac{7}{12}$ ✓

18. $\dfrac{1}{6} + \dfrac{1}{3} + \dfrac{2}{5}$

$\dfrac{5 + 10 + 12}{30} = \dfrac{27}{30} = \dfrac{9}{10}$ Ans ① $\dfrac{9}{10}$ and ② 30

$\dfrac{\frac{1}{6} + \frac{1}{3} + \frac{2}{5} + \frac{1}{10}}{30} = \dfrac{5 + 10 + 12 + 3}{30} = \dfrac{30}{30} = 1$

Circled: 10

P 104 Ex 37b Nos 11, 12, 13.   25-10-62

11. $6\tfrac{1}{2}$ — $73\tfrac{1}{2} - 69\tfrac{7}{8}$

     $4 \dfrac{4 - 7}{8} = 3\dfrac{5}{8}$ Ans $3\tfrac{5}{8}$ ins. ✓

13.   220

    $\underline{60 \times}$ $2\overline{)13200}$ $\dfrac{4400 \text{ sq.yds}}{4840 \text{ sq.yds}} = \dfrac{100}{110} = \dfrac{20}{22} = \dfrac{10}{11}$

    13200   4400 sq.yds

         and $\dfrac{10}{11}$th of the area of an acre. ✗

19. $17\frac{3}{8} + 22\frac{5}{6}$.

$39 \dfrac{9+20}{24} = 39\frac{35}{24} = 40\frac{5}{24}$

$60 - 40\frac{5}{64}$

$20 \dfrac{0-20\ 5}{24} = 19\frac{19}{24}$.

ans $19\frac{19}{24}$ yds

(7)

Revision.

22-11-62

1 $\frac{5}{11} = .454$ $\frac{6}{13} = .464$ $.459 - .454 = .005$ $.464 - .54 = .10$

$.464 - .459 = .002$ ans $\frac{6}{13}$.

2 $1152 (2\frac{3}{4}) = \cancel{40}\ \cancel{30}\ 2\frac{1}{4}d.$ 3 $5885 (\frac{1}{4}) = \frac{7}{12}\ s.\ 2\frac{1}{4}d$

$\begin{array}{r} 8 \\ 143\overline{)1152} \end{array}$

$\begin{array}{r} 78 \\ 41 \\ 3120 \\ 78 \\ \hline 3198 \end{array}$ ans £6. 13s 3d

$\begin{array}{r} 41\ v\ 22 \\ 143\overline{)5885} \\ 572 \\ \hline 165 \end{array}$

$= \times \dfrac{143}{22}$

3 $.2 \times .0003$ $\frac{2.2 \times 15}{21\ 7\ 8}$ $.2$ $.005$
   $2.2 \times .0015$ $.0003$ $.03$
   $.075 \times .75$
   $.005 \times .03$ $.00006$ $.00015$

$\dfrac{.00006}{.00015} = \dfrac{6.}{15.} = 15\overline{)60}\ \dfrac{4}{} = .000004$ ans.

4 $\begin{array}{r} 27.5 \\ \sqrt{756.25} \\ 4 \\ 4\overline{)356} \\ 329 \\ 5\ 45\overline{)27\ 25} \\ 27.25 \\ \hline .0. \end{array}$ ans .27.5

5   25 × 15 = 375   35)675
                        10   25 sq ins

and 10 look overs and there are 25 sq. ins. uncovered.

P.103 Ex 37a No. 16.17.18.   8-10-62   ⑦

16. $\frac{24}{55} + \frac{3}{11}$

                        55 - 24 = 16 $\frac{48}{16}$ × 3   3.5 × 3 = 16.5

      $\frac{24+15}{55} = \frac{24}{55}$

                        ans 16.5 gall ✓

17. $\frac{1}{8} + \frac{1}{6} = \frac{7}{64}$ ans ① = $\frac{7}{24}$ and ② = $\frac{5}{13}$

      $\frac{7}{24} × \frac{2}{1} = \frac{7}{12}$ ✓
       12

18. $\frac{1}{6} + \frac{1}{3} + \frac{2}{5}$
      $\frac{5+10+12}{30} = \frac{27}{30} = \frac{9}{10}$ ans ① $\frac{9}{10}$ and ② 30

      $\frac{1}{6} + \frac{1}{3} + \frac{2}{5} + \frac{1}{10}$
      $\frac{5+10+12+2}{30} = \frac{30}{30} ? = 1$

P.104 Ex 37b No. 11,12,13   25-10-62

11.   6⅞   73½ - 69⅞
      4 $\frac{4 - 7}{8}$ = 3⅝   ans 3⅝ ins. ✓

12.   220   3)13200   4400 sq yds = $\frac{100}{110}$ = $\frac{80}{22}$ = $\frac{10}{11}$
       60×   4400 sq yds   4840 sq yds
      13200

      ans. $\frac{10}{11}$ of the area of an acre. ✗

4) $17\frac{3}{8} + 22\frac{5}{6}$.

$34\dfrac{9+20}{24} = 34\frac{29}{24} = 40\frac{5}{24}$

$60 - 40\frac{5}{24}$

$20\dfrac{0-29\,5}{24} : 19\frac{19}{24}$.

ans $19\frac{19}{24}$ yds.

(7)

$= 16.5$

Revision.   22-4-62

1 $\frac{5}{11} = .454$ $\frac{6}{13} = .464$ $.459 - .454 = .005$ $.464$

$.464 - .459 = .002$ ans $\frac{6}{13}$.

3   $1452 (2\frac{1}{2}d) = $0 3o 2\frac{1}{2}d.$ 3 $5885 (\frac{1}{2}d) = $12 5o 2\frac{1}{2}d$

$\begin{array}{r} 8 \\ 143)\overline{1152} \end{array}$

$\begin{array}{r} 78 \\ 41 \\ 3120 \\ 78 \\ \hline 3198 \end{array}$ ans $6. 13o 3\frac{1}{2}$

$\begin{array}{r} 41 \cdot 22 \\ 143)\overline{5885} \\ 572 \\ 165 \\ 143 \\ \hline 22 \end{array}$

2   $.2 \times .0003$
    $3.5 \times .0015$ $\dfrac{2.2 \times 15}{51 \times 13}$ $.2$ $.005$
    $.075 \times .25$ $.0003$ $.03$
    $.005 \times .03$ $.00006$ $.00015$

$\dfrac{.00006}{.00015} = \dfrac{6.}{15.} = \begin{array}{r}4\\15)\overline{60}\end{array} = .000004$ ans.

$\dfrac{80}{17} = \dfrac{10}{11}$.

4   $\begin{array}{r} 27.5 \\ \sqrt{7,56,25} \\ 4 \\ 4)\overline{356} \\ 329 \\ 545)\overline{27.25} \\ 27.25 \\ \hline .0.. \end{array}$

ans 27.5

$$\frac{40 \cdot 9}{16,72,81} \quad \text{ans } 40 \cdot 9$$

$\underbrace{16}$

$80 \overline{)\ 72 \cdot 81}$

$\underline{72 \cdot 81}$

⑥

$\dots\dots$

<u>P 137 & 52 c Pos 1, 4, 5, 9.</u>   17-1-62

1 198 mm = 19.8 cm. 38·7 cm − 19·8 cm = 18·9 cms.   ans 18·9 cms.

2 203 cm.   ans 203 cm

5 274
716
431   ans 1·891 Km.
189
96
215
18 91 m = 1·891 Km

9 63·24 + 52·86 m = 116·10 × 2 = 232·2 m = 2·3224 m.

<u>P. 143 5 & 54 a Nos 21, 22, 23, 24 and 27</u>   7-2-62

21) ·05968   R.E. = ·06 × 500 = 30

532·8

29840000
1790400
114360
47744
31·747504   ans 31·797504 ✓

---

22)

3133·
35,8
6

349·8

23)

812
4,87
8

13·1

24)

327·7
21
3

3·5

27) 54
10
546
4
59

⑩

22) $\cdot$4477   R.E. = $\cdot$45 × 800 = 360 $0.4 × 800$
       781$\cdot$4   720$\cdot$0
     31339 000   ans = 349$\cdot$83278
      35,81 600
       44770
       27,908
     349$\cdot$83278 ✓

23) $\cdot$8125 $\cdot$8 - $\cdot$5 × 16 = 12$\cdot$8
        16$\cdot$17
      8125 0 00   ans = 13$\cdot$138125 ✓
      4,875 0 00
        81250
        56,875
     13$\cdot$138125

24)   10$\cdot$925   R.E. = 11 × $\cdot$3 = 3$\cdot$3 ✓
        $\cdot$3234
     32775 000   ans = 3$\cdot$583145
      2,85 000
        327750
        43700
     3$\cdot$583145 0

27)   54$\cdot$6 × $\cdot$0281   R.E. = 50 × 11 × $\cdot$03 = 16$\cdot$5
       10$\cdot$9
      5460 0   595$\cdot$14
       4,914 $\cdot$0281   ans. = 16$\cdot$723434. ✓
      595$\cdot$14 11 902800
                     4,761120
                       59,514
                    16$\cdot$723434

(10)

p.149 Ex.55a Nos 9,10,21,23   28-2-62

9. $6\frac{27}{80}$:

$$80\overline{)27000\,0}\quad \frac{3375}{}\qquad ans = 6\cdot3375.$$

240

300
240

600
560

400
400

10. $= \frac{439}{50} = 8\frac{39}{50} = $

$$50\overline{)3900}\qquad \frac{78}{}\qquad ans = 8\cdot78$$

350

,40 0

21. $\frac{5}{12} = $

$$12\overline{)50^0/_0}\qquad \frac{41}{}\qquad ans = \cdot\,\text{\st{44}}\,42$$

23. $\frac{11}{13} = $

$$13\overline{)40^0/_0}\qquad \frac{84}{}\qquad ans\ \cdot8\,45$$

P.149 Ex.56 Nos 21-32   Date

21(i)38 · (ii) 37·75   (22)(i) ·85 (ii) ·8465   (23)(i) ·063 (ii)·06303
24(i) ·90(ii)·8973   (25)(i)2·3(ii) 2·332   (26)(i) 1·9 (ii) 1·874
27 (i)·090(ii)·09006   (28)(i) ·0073(ii)·007318   (29)(i)490 (ii) 486·5
30 (i)2900 (ii)2856   (31) 680(ii) 684·1   (32) 940 (ii) 938·5.

Decimalisation of money   2-5-63

1. Express 10s 6½d as a decimal of £1 correct to 3 decimal places

12) 6·5°0°0%
   0·5416   ans = £0.522.

20) 10·5'4"1"6
    0·52208

2. Express £4.2s.7d as a decimal of £1 correct to 3 decimal places

12) 7·0°0%0%
    0·5833

20) 2·5'8'3'3   ans = £ 4·129
    0·1291

3. Express 9s10d as a decimal of £1 correct to 3 decimal places

12) 10·0°6%4%
20) 9·8333
    0·4916   ans = £0·492

4. Express £2.10s 6d as a decimal of £1 correct to 3 decimal places

20) 10·5'0'00
    0·5205   ans = £2·521

27. £4. -9- 2d

$$\frac{12\overline{)2.0000}}{20\overline{)4.1666}}$$
0.4555

ans = £4.456

28. 17s 5d

$$\frac{12\overline{)5.0000}}{20\overline{)17.4166}}$$
0.8705   ans = £0.871

29. £2.8.3½d

$$\frac{12\overline{)3.5000}}{20\overline{)8.2916}}$$
0.4145

ans = £2.415.

30.   17s 4½d

$$\frac{12\overline{)9.5000}}{20\overline{)17.7916}}$$
0.8895

ans = £0.890

31. £5.5.5½d

$$\frac{12\overline{)5.500}}{20\overline{)5.4583}}$$
0.2729   ans = £5.273.

P 164. Ex 59a Nos. 3·4·7·17·21   83-5-63

3. 12 cwt. 1qr. 7lb as a dec of 1ton:

$$28 \begin{cases} 4 & 7.000 \\ 7 & 1.7500 \end{cases}$$
$$4 \quad 1.2500$$
$$20\overline{)12.3125}$$
$$0.615625$$

ans = 0.615625 tons.

4. 3 tons. 6 cwt 2 qr.

$$\frac{4 \mid 2}{20 \mid 6.5\overset{...}{6}\overset{...}{0}\overset{..}{0}}$$
$$\boxed{0.325\cancel{0}}$$

ans = 3.325 tons.

7. 4 fur. 37 yds. as a dec. of 1 ml.

$$220 \begin{cases} 11 & 77 \\ 5 & 7.\overset{2}{0} \\ 4 & 1.4 \\ 8 & 4.3\overset{3}{5}\overset{5}{0}\overset{6}{0}\overset{0}{0} \end{cases}$$
$$0.54375$$

ans = 0.54375 ml.

17. 3 qr 20 lbs 6 oz 1 cwt

$$16 \begin{cases} 4 & 6.0 \\ 4 & 4.5\overset{2}{0} \end{cases}$$
$$28 \begin{cases} 4 & 20.37'5 \\ 7 & 5.09'375 \\ 4 & 0.72767 \end{cases}$$
$$0.18191$$

0.932

ans = 0.182 cwt. ✗

21. 7.9375 cwt

7.9375   7.3.21

$$\frac{4}{\cancel{3}.75\cancel{0}\cancel{0}}$$

$$28 \begin{cases} 3.\cancel{0}\cancel{0} \\ \frac{4}{1} \\ 21. \end{cases}$$

ans = 7 cwt. 3 qr. 21 lbs.

22. $\frac{5}{8} \times \frac{3}{8} \div (6\frac{3}{4} \times 3\frac{3}{4})$ $\frac{27}{4} \times \frac{15}{4} = 25\frac{5}{16} \div \frac{15}{64}$ 6.

$\frac{405}{16} \div \frac{15}{64}$ = $\frac{\cancel{405}}{\cancel{16}} \times \frac{\cancel{64}}{\cancel{15}}$ $27 \times 4 = 108$
$\phantom{\frac{405}{16}} = \frac{27}{}$

ano = 108 tiles.

25. $5\frac{1}{4} \times 2\frac{1}{2} \div (1\frac{1}{2})$ $\frac{21}{4} \times \frac{5}{2} = \frac{105}{8} = 13\frac{1}{8}$

$13\frac{1}{8} \div 1\frac{1}{2}$ = $\frac{105}{8} \div \frac{3}{2}$ = $\frac{\cancel{105}}{\cancel{8}} \times \frac{\cancel{2}}{\cancel{3}}$ = $\frac{7}{35} \cdot \frac{35}{4}$ = $8\frac{3}{4}$

ano = 8 lb. 12 oz. ✗

31. $(7m + 4.5m) \times 2 \times 2.75$

11.5   2.75   ano = 63.25 sq.m.
  2   23
23.0   5,500
              8 25
              6 3.25

⑦

$\frac{19\frac{1}{2}}{18} = 1\frac{1\frac{1}{2}}{18}$

$\frac{155}{3\cdot0}$ $\frac{14}{126}$ $4\frac{12}{18\frac{8}{3}}$

6. area of room = 27' x 18'
    area of fireplace = (2¼' x 4½') x2

    area of floor = 27' x 18 - (2¼' x 4½') x2

    27
    18
    ───
    270
    216
    ───
    486 sq.ft.

    2¼ x 4½ = $\frac{9}{4}$ x $\frac{9}{2}$ = $\frac{81}{8}$ = 10⅛ x 2 = 20¼ sq.ft.

    486 sq.ft - 20¼ sq.ft = 465¾ sq.ft

    area of floor = 465¾ sq.ft. = 15 5⁄9 yds 4ins

    area of lino = 18ft x 1¼ ft. = 22½ sq.ft. = 7yds 10ins ¹²⁄₃₆ yds

    yds. of lino = $\frac{465¾ ft.}{22½}$ = $\frac{1863}{4}$ ÷ $\frac{45}{2}$ = $\frac{1863}{4}$ x $\frac{2}{45}$ = $\frac{307}{10}$

    307
    ───
    = 30 ⁷⁄₁₀ ft

    $\frac{155¼ yds}{7 5⁄18 yds}$ = $\frac{621}{4}$ ÷ $\frac{131}{6}$ $\frac{621}{4}$ x $\frac{6}{131}$

6   area of room = 9 yds x 6 yds = 54 sq. yds
    area of fireplace = 20ft 3ins = 6 4⁄7 yds
    ∴ area of floor = 54 sq. yds - 6 4⁄7 sq yds = 47 3⁄7 sq yds
    area of lino = ¾ yd x 6 yds = 4½ sq yds
    amount of lino = $\frac{47 3⁄7 sq yds}{4½ sq yds}$ = $\frac{191}{4}$ ÷ $\frac{9}{2}$ = $\frac{191}{4}$ x $\frac{2}{9}$ = 11 1⁄18 yds

    91⁄18 = 1 1⁄18   10 1⁄18 sq. yds

                    = 10 yds 1ft 10 ins.

4½
18⁄6
2

7. area of floor = 16ft × 12½ft =
   area of planks = 12ft × 5/12 ft.
   area of fireplace = 1½ft × ½ ft.

   18
   12½
   ─────
   216
   9
   ─────
   225 sq. ft.

   area of fireplace = 5 sq ft.
   ∴ area of room = 225 sq ft − 5 sq ft = 220 sq. ft.
   area of planks = 12ft × 5/12
   ∴ amount of planks = $\frac{220 ft}{12 ft × \frac{5}{12} ft}$ = $\frac{12}{1} × \frac{5}{12}$ = 5 ft.

   ∴ no of planks needed = $\frac{220}{5}$ ft = 44 planks

   ans = 44 planks. ✓

8. area of quilt = 3yd × 2yd
   area of patchwork = 8ft 8ins × 4ft 8ins
   no of patches = $\frac{8\frac{2}{3} × 4\frac{2}{3}}{1\frac{1}{3}}$ = $\frac{17}{2} × \frac{14}{3}$ = $\frac{119}{3}$ = 39$\frac{2}{3}$

   a area − border
   = 42 × 56
   area = of 155

   = 39$\frac{2}{3}$ ÷ $\frac{1}{3}$ = $\frac{119}{3}$ ÷ $\frac{1}{3}$ = $\frac{119}{8}$ × $\frac{3}{1}$

   no of patches = 7$\frac{2}{3}$ × 4$\frac{2}{3}$ = $\frac{23}{3}$ × $\frac{14}{3}$ = 35$\frac{7}{9}$

   $\frac{322}{9}$ ÷ 1$\frac{1}{3}$ = $\frac{322 × 3}{8}$ $\frac{322}{9}$ ÷ $\frac{4}{3}$ = $\frac{322}{9}$ × $\frac{3}{4}$

   161   No. = $\frac{92 × 1}{16}$

   ∴ 6)101   ans = 25$\frac{1}{6}$ squares   ✗   322
      25$\frac{3}{6}$ $\frac{1}{6}$

69   4% of £1200 = $\frac{4}{100} \times \frac{1200}{1}$

rent paid in 15 yrs $= \frac{4}{100} \times \frac{1200}{1} \times \frac{15}{1}$ = £720.

ans = £720.   ✓

___

70 80% of man's income = £468½

100% "   "   "   = £ 468½ × $\frac{4}{5}$ = $\frac{2341 \times 4}{5 \quad 5} = \frac{9364}{25} = 374\frac{14}{25}$

$= 374\frac{14}{25} \times \frac{4}{1} = \frac{9364}{25}$

$\frac{2341}{5} \div$

$\frac{2341}{5} \div \frac{4}{5} = \frac{2341}{5} \times \frac{5}{4}$ $= \frac{2341}{4} = 585\frac{1}{4}$

ans = £585, 5s   ✓

___

72 total of boy's marks gotten by him = 84 + 39 + 43 = 166
    "   marks possible   = 125 + 75 + 60 = 260

percentage = $\frac{166}{260} \times \frac{100}{1}$

$\frac{166}{260} \times \frac{100}{1} = \frac{166}{260} \times \frac{100}{1} = \frac{8300}{130} = 63\frac{11}{13}\%$

ans = 63.64%

21 Copper = 78, Tin = 14, Zinc = 8   ∴ proportion = 78:14:8

∴ if Zinc = 1lb 2g (18g)

∴ $\frac{\text{zinc}}{} \quad \frac{7}{40} \times \frac{11}{7}$ = 18 of total

40
30
25

∴ 1 part = $\frac{1lb\ 2g}{8}$ = $2\frac{1}{4}g$ = 2·25g

∴ 14 parts: 2·25
         14×
         2250
         900
         31·50   = 31·5g = 1lb 15½g.

78 parts =
   2·25
   78
   15750
   1800
   175·50   = 175·5g = 10lb 15½g

∴ total weight = 1lb 2g.
                 1lb 15½g
                 10lb 15½g
                 1lb 1g.

= 14lb. 1g.

✓

22. X put in £6000
X's share of profit = £1522 10.0
X Draw = £840
∴ X share = £1522 10.0 − £840 = £682 10.0
∴ proportion = 840:682½   = 1680 : 1365   = 560:455 = 112:91
= 112:91   = 16:13

$\therefore$ ₹6000 = proportion $\frac{13}{29}$ $\frac{4}{16}$ 16:13

$\frac{91}{203} = \frac{1}{7}\overline{)300}^{42\frac{6}{7}} = 42\frac{6}{7} \times 11$ $\frac{300}{7} \times \frac{13}{1} = 300 \times 13 =$

₹3900

$300 = \frac{1}{7}$ ₹3900

$\therefore \frac{91}{203} = \frac{1}{d} \frac{300}{7} = 42\frac{6}{7}$

$\frac{16}{29} = \frac{1}{d} \frac{6000}{16} = ₹375$

$\therefore$ Y's investment = ₹375 × 13 = ₹4875. ✓

13
3750
1125
4875

23. To find cost of shortest front   divide ₹223 13s in proportion 35½ 127:24
:30

$\therefore$ proportion of shortest = $\frac{24}{106\frac{1}{2}} \times$ ₹223 13s

= $\frac{24}{106} \times$ ... $\times \frac{48}{7} = \frac{8}{35\frac{1}{2}}$ ... × ₹223 13s

= $\frac{16}{71} \times 223\frac{1}{30}$ = $\frac{8}{71} \times \frac{63}{4875}$ = ...

= $50\frac{2}{5} \times \frac{2}{1}$ = $\frac{35}{5} \times \frac{7}{1}$ ✓

= $\frac{16}{312} \times \frac{4875}{1}$ = 1008s. = ₹50.80

ans = ₹50.80.

76. A man pays 13s.6d duty for an article

Duty is charged at a rate of 15%

∴ 13s6d : 15% = 2/100

∴ 100% =

$$\frac{\cancel{162}^{54}}{\cancel{15}} \times \frac{\cancel{100}^{20}}{1} = 1080 d. = \begin{array}{r} 12 \overline{)1080} \\ 20 \overline{)90} \\ 4\frac{1}{2} \end{array}$$

∴ ans : £4.10.s.

9. Find 18% of 5 cwt 2qr. 9 lbs. , 5cwt 2qr. 9lbs =

$$\begin{array}{r} 4 \overline{)9.00} \\ 7 \overline{)2.25\ldots} \\ 4 \overline{)2.3214285} \\ .580357125 \end{array} : 5.5806$$

18% = 5.5806

∴ 10% = .55806   = .111612
   2% = .111612
   8% = .111612   .446448
   2% = .111612   .5.5806
   2% = .111612   1.00450 =   .0945   .0945
                                  20   20
.0045   0.0180   ⟨⟩
   4

.0180   ans : 1 cwt 0qr. ½ lb.

15. annual consumption of coal now = 60% of pre war total
cost has increased by 85%.
annual coal bill exceeds pre war by $\frac{1}{\cancel{5}} \times \frac{\overset{17}{\cancel{85}}}{\cancel{100}} = \frac{}{}$

so = 31%

---

amount of coal is 60% of pre-war yrs
∴ let 100 tons be prewar consumption
and ∴ 60 tons is post war consumption

Price per ton has increased by 85%
∴ let 100/- be pre-war price
and ∴ post war price is 185/-

∴ total pre-war cost is 100×100
= 10000/-
total post-war cost is 185/- × 60
= 11100
∴ increase is 11,100 − 10,000
= 1100/-
∴ this as a percentage increase
is $\frac{1100}{10000} \times 100$ = 11% ✓

<u>Percentage</u>   7-11-63

⑩ 1 an article is sold for £3.4s6d at a profit of 29% on the cost price. at what price
must it be sold to give an extra 11% profit on the cost price.

S.P. =

gain = 29%

S.P. = $\frac{129}{100}$ % of C.P   ∴ C.P. = $\frac{100}{129} \times \frac{29}{80} = \frac{245}{50} \times \frac{105}{124} = \frac{415}{177}$

$$= \frac{\overset{5}{\cancel{100}}}{129} \times \frac{\cancel{9}}{\underset{2}{\cancel{40}}} \times 3\frac{1}{10} \qquad \frac{\cancel{124}}{\underset{2}{40}} \times \frac{\overset{5}{\cancel{100}}}{\cancel{124}} = \frac{5}{2} = 2\frac{1}{2} = £2.10_0$$

$C.P = £2.10_0$

gain of 40%

$\therefore S.P = \qquad £2.100 \times \frac{140}{100} \qquad = \frac{\overset{70}{\cancel{140}}}{\underset{\cancel{X}{1}}{\cancel{100}}} \times \frac{\overset{1}{\cancel{50}}}{1} = 700 = £3.10_0$

$ans = £3.10_0$

(b) find the value of $4\frac{1}{2}\%$ of £270

$$\frac{4\frac{1}{2}}{100} \times 270 \qquad = \frac{9}{\underset{20}{\cancel{200}}} \times \overset{27}{\cancel{270}} = \frac{243}{20} = 12\frac{3}{20} = £12.3_0.$$

$ans = £12.3_0.$

(c) A shopkeeper bought apples at £6 per cwt. and sold them at 1s1d per lb. Express his profit as a percentage of his outlay

$C.P. = £6.$

$S.P = 1s6d \times 112lb_0. \qquad = 112 \times 3(6d) \qquad = 336(6d) \qquad = 1680 = £8.80$

$\therefore$ percentage of profit $= \frac{£2.80}{£6} \times \frac{100}{1} \qquad = \frac{\overset{8}{\cancel{48}}}{\underset{\cancel{6}{1}}{120}} \times \overset{5}{\cancel{100}} = = 40\%$

$ans = 40\%$

[0

5 C.P. = ₹12 , gain = $7\frac{1}{2}\%$

$$\therefore S.P. = 12 \times \frac{107\frac{1}{2}}{100} = \frac{\overset{43}{\cancel{215}}}{\cancel{200}} \times \overset{3}{\cancel{12}} = \frac{129}{10} = ₹12.150 \ ans \quad \checkmark$$

$$\frac{100}{50}$$
$$\frac{50}{10}$$

6 C.P. = ₹21 loss $8\frac{1}{3}\%$ =

$$\therefore S.P = ₹21 \times \frac{91\frac{2}{3}}{100} + \frac{\overset{11}{\cancel{275}}}{\cancel{300}} \times 21 = \frac{231}{12} = 19\frac{3}{12} = ₹19.50. \ ans \quad \checkmark$$

$$\frac{12}{}$$

11 C.P. = 7/6d : S.P = 6/8d

$$\therefore \% loss = \frac{10d}{7/6d} \times 100 = \frac{\overset{}{12}}{\frac{90}{9}} \times \overset{10}{\cancel{100}} = \frac{100}{9} = 11\frac{1}{9}\% \ ans. \quad \checkmark$$

12 S.P. = 7/- : C.P = 8/2½

$$\% loss = \frac{10\frac{3}{4}}{8/2\frac{1}{2}} \times 100 = \frac{\overset{}{11\frac{1}{4}}}{\frac{98}{\frac{14}{7}}} \times 100 = \frac{100}{7} = 14\frac{2}{7}\% \ ans \quad \checkmark$$

13 C.P. = ₹18.150 , S.P. = ₹21.100

$$\% gain = \frac{₹2.150}{₹18.150} \times 100 + \frac{11}{\frac{75}{3}} \times \overset{4}{\cancel{100}} = \frac{44}{3} = 14\frac{2}{3}\% \ ans. \quad \checkmark$$

15. S.P. = £4.40 ; gain = 12%

$\therefore$ C.P. = $\dfrac{100}{112} \times £4.40$ = $\dfrac{\overset{25}{100}}{\underset{4}{\underset{16}{\cancel{112}}}} \times \overset{\overset{3}{\cancel{}}}{84} $ = 75s = £3.15s ans ✓

17. S.P. = £2.7s6d ; loss 5%

C.P. = $\dfrac{\overset{\overset{1}{20}}{\cancel{100}}}{\underset{1}{\underset{19}{95}}} \times s4(2s6d)$ = 20(2s6d) = £2.10s. ans ✓

18. S.P. = £5.0s.10d , gain = 120%

C.P. = $\dfrac{\overset{10}{\cancel{100}}}{\underset{1}{\underset{20}{220}}} \times (2s10d)$ = 1100(a) = 91s 8d = £4.11s 8d ans. ✗

20. S.P = £6.3s ; loss 18%

C.P. = $\dfrac{\overset{50}{\cancel{100}}}{\underset{4}{\underset{82}{82}}} \times \overset{3}{12s3}$ = = 150s = £7.10s ans. ✓

8/9

_____

P.245 Ex.75c Bos. 2,7,15.   21-11-63

2. C.P. = £7 per cwt
profit = 33⅓%

$\therefore$ S.P. = $\dfrac{100}{300} \times \dfrac{7}{1}$ = $\dfrac{1}{3} \times 7$ = $\dfrac{7}{3}$ = £2⅓ per cwt

= £2.6s 8d per cwt $\dfrac{133½}{100} \times \dfrac{7}{1}$ = $\dfrac{400}{300} \times \dfrac{7}{1}$ = $\dfrac{1}{3} \times 7$ = $\dfrac{28}{3} = 9⅓$

= £9.6s 8d per cwt.

if it is sold at £9.608d per cwt

cost per lb = $\dfrac{£9.608d}{112}$ = $\dfrac{2240d}{112}$ = 20d = 1s 8d

ans = 1s 8d ✓

7. S.P. = 14×12 = 168 eggs at 8 for 10 = $\dfrac{168}{8}$ × 10 = 210

gain = 26%

∴ C.P = $\dfrac{50}{100}$ × $\dfrac{3}{21}$ = $\dfrac{50}{3}$ = $16\frac{2}{3}$s = 16s 8d.

ans. = 16s 8d. ✓

15 cost of printing and binding(s) = £187.10s per 1000 copies

price of 1 copy = $\dfrac{£187.10s}{1000}$ = $\dfrac{375(10s)}{1000}$ = $\dfrac{3}{8}$ (10s) = 3s 9d

C.P. of one copy = 3s 9d
profit of 20%

∴ S.P. = $\dfrac{120}{100}$ × 45 = 54d = 4s 6d

pays author and bookseller 40% of published price

40% of 9(6d) = $\dfrac{2}{5}$ of s = $\dfrac{18}{5}$ =

= $\dfrac{40}{100}$ × 54 = $\dfrac{108}{5}$ = $21\frac{3}{5}$ d   P.T.o

∴ C.P = 20% + 15% + 25% = 60%.

$$= \frac{\overset{3}{\cancel{160}}}{\cancel{100}} \times \overset{4}{\cancel{45}} = 72d. = 60. \text{ ans} \quad \checkmark$$

$\frac{16}{10}$

6. I = $\frac{P.R.T.}{100}$

$$I = \frac{\overset{8}{\cancel{\cancel{224}}}}{1} \times \frac{7}{\cancel{7}} \times \frac{1}{\underset{5}{\cancel{100}}} \times T = \frac{56}{5}$$

$$T = I \times \frac{5}{56}$$

$$= £44.45 \times \frac{5}{56} = \frac{\overset{4}{\cancel{224}}}{\underset{1}{\cancel{8}}} \times \frac{\overset{1}{\cancel{5}}}{\underset{1}{\cancel{56}}} = 4$$

ans = 4 yrs. $\checkmark$

7. I = $\frac{P.R.T.}{100}$

$$I = \frac{\overset{3}{\cancel{6}}}{\underset{4}{\cancel{12}}} \times \frac{\overset{2}{\cancel{6}}}{\cancel{7}} \times \frac{1}{100} \vee P = \frac{27}{\cancel{100}} \quad \frac{9}{400}$$

$$P = I \times \frac{100}{27} = \frac{\overset{17}{\cancel{153}}}{\cancel{8}} \times \frac{\overset{50}{\cancel{100}}}{\cancel{400}} = 3850 \text{ ans}$$

$$= £14.18 \times \frac{100}{27} = \frac{\overset{17}{\cancel{153}}}{\underset{\cancel{8}}{\cancel{8}}} \times \frac{\overset{25}{\cancel{100}}}{\underset{3}{\cancel{27}}} = \frac{425}{6} = £70\frac{5}{6}$$

ans. = £70.16.8d.

8. $I = \dfrac{P.R.T}{100}$

$I = £299.40 - £256 = £43.40$

$\therefore £43.40 = \dfrac{\cancel{256}^{\,16}}{1} \times \dfrac{\cancel{15}^{3}}{\cancel{4}} \times \dfrac{1}{\cancel{100}^{\,20}} \times T = \dfrac{48}{5}$

$T = £43\frac{2}{5} \times \dfrac{5}{48} = \dfrac{\cancel{217}}{\cancel{2}} \times \dfrac{\cancel{5}}{\cancel{48}} = \dfrac{27}{6} = 4\frac{1}{2}\text{ yrs}$

ans. = $4\frac{1}{2}$ yrs.

⑩

30-1-64

1. 7 cwt. 3 qr. 14 lb @ £2. 11s. 10d.

		£	s.	d.
cost at 1 cwt	=	£2	11	10
cost at 7 cwt	=	£18	2	10
" " 2 qr (¼ cwt)	=		1, 5	11
" " 1 qr (½ of 2 qr)	=		12	11½
" " 14 lb (½ of 1 qr)	=		6,	5, 5¾
		£20	8	2

ans = £20. 8s. 2d

2. 3 cwt 1 qr 18 lb @ £4. 10s 8d.

		£	s.	d.
cost of 1 cwt		=	£4.	10s 8d
cost of 3 cwt		=	£13	12	0
" " 1 qr (¼ of cwt)	=		1,	2	8
" " 14 lb (½ qr)	=			11	4
" " 4 lb (½ qr)	=		3,	2 2/7
		£15	9	3½

ans = £15. 9s 3d.

⑩

477A. 8 $A = \pi R^2$

$D = 26\,mm.$

$\therefore A = \dfrac{\overset{13}{\cancel{26}}}{\underset{1}{\cancel{2}}} \times \dfrac{26}{\underset{1}{\cancel{2}}} \times \dfrac{\overset{11}{\cancel{22}}}{7} = \dfrac{3718}{7} = 531.14$ sq. mm. approx., ans.

477B. 2 $A = \pi R^2$

$R = 11$

$\therefore$ area $= \dfrac{11}{1} \times \dfrac{11}{1} \times \dfrac{22}{7} = \dfrac{2662}{7} = 380.29'' = 31'8.29''$

ans. = 31 sq. ft. 8.29 sq. ins. approx.
or 380.29 sq. ins. approx.

5   $A = \pi R^2$

$D = 1.96\,cm$

$\therefore A = \dfrac{1.96}{\underset{1}{\cancel{2}}} \times \dfrac{1.96}{\underset{1}{\cancel{2}}} \times \dfrac{\overset{11}{\cancel{22}}}{\underset{1}{\cancel{7}}} = 3.0184$ sq. cm. approx., ans.

10
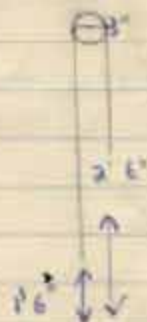
Circumference of circle $= \pi D = \dfrac{3}{1} \times \dfrac{22}{7} = \dfrac{66}{7} = 9.43''$

half C = 4.7"

~~rates of ~~~~~~~ above ground~~

length of towel = 7' 6"

length around roller = 4.7"

length of towel left = 7'1".3

If two ends of towel were equal length above floor.

length of one end above floor = $\dfrac{7'1.3"}{2}$ = 3' 5.65"

~~length~~ of 1 end above floor = 1' 6"

∴ length of one end above floor = 3' 5.7" + 6" = 3' 11.7"

$$ans = 3' 11.7"$$

---

30. One side of square = diameter of circle

radius of circle = ¼ of C of square

ans = 7.8 ~~and~~ ~~6~~ approx.   ans = 4·5" + 3.5".

P 256 Ex 78a. Nos 22, 24, 25.   27-2-64

22 $A = 2\pi r (h+r)$

$$= \dfrac{2}{1} \times \dfrac{22}{7} \times \dfrac{63}{2} \times \left(\dfrac{63}{2} + 92\right) =$$

$$= \dfrac{2}{1} \times \dfrac{22}{7} \times \dfrac{63}{2} \times \dfrac{155}{2} = 17345 \text{ sq. cm.}$$

ans. in sq. m. = 1.73 sq. m. approx.

---

24 A of open cylinder ∗ i.e circular cylinder = $2\pi Rh$.

A. of semi circular cylinder = πRh.

∴ A of surface of tunnel = $\dfrac{22}{7} \times \dfrac{7}{2} \times \dfrac{300}{1}$ = 3300 sq. yds. ans

25. A of wetted surface = $\pi R^2 + 2\pi R h$.

$$= \left(\frac{\overset{11}{22}}{\underset{1}{7}} \times \frac{\overset{.35}{2\cdot 45}}{\underset{1}{2}} \times \frac{2\cdot 45}{2}\right) + \left(\frac{2}{1} \times \frac{\overset{11}{22}}{7} \times \frac{\overset{.35}{2\cdot 45}}{2} \times \frac{1\cdot 2}{1}\right)$$

$$= \frac{9\cdot 5425}{2} + \frac{9\cdot 24}{1} \qquad = 4\cdot 77125 + 9\cdot 24$$

$$= 18\cdot 7825 \text{ sq. m. approx. ans.} \qquad = 14\cdot 01125 \text{ sq. m. approx. ans.}$$

22-4-64

23 area of circular cylinder = $2\pi r h$

Diameter of " " = $\dfrac{A}{\pi h}$

$$D = \frac{22}{9} \div \left(\frac{22}{7} \times \frac{2}{3}\right) \text{ ft.}$$

$$= \frac{\overset{1}{22}}{\underset{\underset{3}{9}}{9}} \times \frac{7}{\underset{1}{22}} \times \frac{\overset{1}{3}}{2}$$

$$= \frac{7}{6} \text{ ft.}$$

ans = 1 ft 2 ins.

24. Total surface area = 4 mm. + height of cylinder
$$= 4 \text{ mm} + 5 \text{ cm}$$
$$= 5\cdot 4 \text{ cm.}$$
∴ Total surface area = $2\pi r (h+r)$

$$= \frac{2}{1} \times \frac{3}{1} \times \frac{22}{7} \left(\frac{5\cdot 4}{1} + \frac{3}{1}\right) \text{ sq. cm.}$$

$$= \frac{2}{1} \times \frac{3}{1} \times \frac{22}{\cancel{7}} \times \frac{\overset{1.2}{\cancel{2.4}}}{1} \text{ sq. cms.}$$

10

$$= 158.4 \text{ sq. cms. } \text{ans.}$$

<hr>

Questions with π 30-4-64

1. A pipe of thickness $\frac{1}{2}''$ has an external diameter of 1 ft. Find the volume of 20 ft. of pipe

$$V = \pi(R+r)(R-r)h.$$

$$= \frac{22}{7} \times (6+5\tfrac{1}{2})(6-5\tfrac{1}{2}) \times \frac{240}{1} \text{ cub. ins}$$

$$= \frac{22}{7} \times \frac{23}{\cancel{2}} \times \frac{1}{\cancel{2}} \times \frac{\overset{120}{\cancel{240}}}{1} = \frac{30360}{7} = 4337.14 \text{ cub. ins}$$

$$= 1728 \overline{)4337.1420} \quad \text{cu. ft.} \qquad\qquad = 2.5099 \text{ cu. ft.}$$
$$\quad \underline{3456}$$
$$\quad 881.1$$
$$\quad 8640$$
$$\quad \underline{17140}$$
$$\quad \underline{15552}$$
$$\quad 15880$$
$$\quad \underline{15552}$$
$$\quad 328$$

(quotient 2.5099)

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2. Water flows through a circular pipe of internal radius 10" at 5 ft. per second. If the pipe is always $\frac{1}{2}$ full find the number of gallons discharged in $\frac{1}{2}$ hour to 3 significant figures (1 cu. ft. = 6¼ gallons)

Rate water flows in ft per minute = 5×60 = 300 ft. per minute.
"   "   "   "   "   "   "   half an hour = 300×20 = 9000 ft per half an hour

Volume of water =

$$\frac{9000}{1} \times \frac{11}{7} \times \frac{5 \times 5}{144} \times \frac{7\cdot5}{1} \times \frac{1}{1}$$

$$= \frac{171875}{4} = 42968\cdot75$$

$$= \frac{859375}{14} = 61383\cdot9$$

$$= 61400 \text{ gallons / ans.}$$

Questions with π 7-5-64

1. A circular traffic island 70' in diameter is to be constructed at a cross roads. Taking $\pi = 3\frac{1}{7}$ find the cost o) of constructing i) = kerb and round the island at 10s 6d per yard 2) of covering the island when level with soil and turf at 3s 9d per square yard altogether

Circumference of traffic island $= \frac{22}{7} \times \frac{70}{1} = 220$ ft.
$= 14$ sq. yards.

(i) Circumference of traffic island $= \pi D = \frac{22}{7} \times \frac{70}{1} = 220$ sq.ft
$= 73\frac{1}{3}$ sq. yds.

cost of laying the kerb $= \frac{220}{8} \times \frac{7}{2}$ s.
$= 770s' = £38.10s$ ans.

(ii) area of traffic island $= \pi r^2 = \dfrac{22}{7} \times \dfrac{70}{2} \times \dfrac{70}{2}$ sq. ft.

cost of covering the island with turf $= \dfrac{22}{7} \times \dfrac{70}{2} \times \dfrac{70}{2} \times \dfrac{1}{3} \times \dfrac{15}{4} \times \dfrac{1}{3}$ s

$= \dfrac{9625}{8}$ s $= £80.40.2d$

$\dfrac{48.20.6d}{30.6.8} = £240.17.8.8$

ans. no(1) $= £38.10.0$, (ii) $= £80.14.3d$

(10) Compound Interest

Find the compound interest on £290 for 3 years at 3%

3%	£290.000	P. for 1st year
	8.700	I. " " "
3%	298.700	P. for 2nd year
	8.961	I. " " "
3%	307.661	P. for 3rd year
	9.229 83	I. " " "
	316.890 83	A after 3 years
	290	
	26.890 83	P. after 3 years.
	20.	
	17.8 166.0	
	12	
	9.7992	ans $= £26.17o.10d.$

2. Find the compound interest on £860 for 2 years at 5%

5%	£860·000	P. for 1st year
	43·00	I " " "
5%	903·000	P. for 2nd year.
	45·15	I " " "
	948·150	A after 2 years
	860	
	88·150	I after 2 years
	20	
	3·000	ans = £88 3s.

(10)

Logarithms.

1. $$\dfrac{(21\cdot65)^2 \times \sqrt[3]{34\cdot7}}{52\cdot2}$$

2. $$\dfrac{19\cdot48 \times 72\cdot3}{\sqrt{210\cdot3}}$$

1. $$\dfrac{(21\cdot65)^2 \times \sqrt[3]{34\cdot7}}{52\cdot2}$$

$\log x = \log 21\cdot65 \times 2 + \log 34\cdot7 \div 3$
$\qquad - \log 52\cdot2$

$R.A = \dfrac{\overset{8}{\cancel{405}} \times 3}{\underset{1}{\cancel{50}}}$

$= 24$

$x = 2929 \qquad ans = 29\cdot3$

No.	Log.
21·65	1·3355
	2
(21·65)²	2·6710
34·7	1·5403 ÷3
∛34·7	0·5134
	2·6710 +
Num.	3·1844
52·2	1·7177 −
x	1·4667

2. $\dfrac{19.48 \times 72.3}{\sqrt{210.3}}$

No.	Log
19.48	1.2896
72.3	1.8591
Numr.	3.1487
210.3	2.3228÷2
Denr.	1.1614
x	1.9873

$\log x = \log 19.48 + \log 72.3$
$\qquad - \log 210.3 \div 2$

$R.A = \dfrac{\overset{4}{20} \times 70}{\underset{3}{\cancel{18}}}$

$\doteq 93 \qquad\qquad x = 9712$

$\qquad ans. = 97.1$

Logarithms.   18-6-56

Find the total surface area of a cylinder whose radius is 3.8" and height 9.6". Take
$\pi = 3.412$. Find also its weight if 1 c.c. weighs 108 gms per c.dash.

Total surface area $= 2\pi r (h + r)$

$x = 2 \times 3.412 \times 3.8 \times 13.4$

$\log x = \log 2 + \log 3.412 + \log 3.8$
$\qquad\qquad + \log 13.4$

No.	Log
2	0.3010
3.412	0.4971
3.8	0.5798
13.4	1.1271
x	2.5050

$x = 3200 \quad ans = 320.0$ sq.in.
$\qquad\qquad = 25.0$ sq. ft

Volume $= \pi R^2 h$

$x = 3.412 \times 3.8^2 \times 9.6$

$\log x = \log 3.412 + \log 3.8 \times 2 + \log 9.6$
$\qquad\qquad \times \log 108$

No.	Log
3.412	0.4971
9.6	0.9823
3.8	0.5798
3.8	0.5798
x	2.6390
108	2.0334

$\log x = 2.6021 + 6775$
$x = 46000 = 4704$

$ans = 40000 \quad ans = 47040$
$ans (i) = 25.0$ sq ft. (ii) $\quad 4706$ gms

P. 269 Exe XCIX Nos. 7, 9, 11.

7 $5.326 \div 10.87$

R.A. $= 5 \div 11$

  $= 0.45$

No.	Log.
5.326	0.7264
10.87	1.0362
$\times$	$\overline{1}.6902$

antilog. $= 4900$

answer $= 0.490$ ✓

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9 0.4132×0.5137

 R.A. $= 0.4 \times 0.5$

   $= 0.2$

No.	Log.
0.4132	$\overline{1}.6162$
0.5137	$\overline{1}.7107$
$\times$	$\overline{1}.3269$

antilog $= 2122$

answer $= 0.212$ ✓

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11 1.413×0.0723

 R.A. $= 1 \times 0.1$

   $= 0.1$

No.	Log.
1.413	0.1501
0.0723	$\overline{2}.8591$
$\times$	$\overline{1}.0092$

antilog. $= 1021$

answer. $= 0.102$ ✓

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⑩

2 $\sqrt{\dfrac{4.819}{2.416 \times 14.72}}$

No.	Log.
4.819	0.6829
2.416	0.3831
14.72	1.1679 +
②+③	1.5510
①-④	$\overline{1}.1319 \div 2$

R.A. $= \sqrt{\dfrac{5}{30}} = 0.4$

$= \dfrac{\overline{1}.1319}{2} = \dfrac{-1 + 0.1319}{2} = \dfrac{-2 + 1.1319}{2} = \overline{1}.5659$

⑩

antilog. = 3681 , answer = 0.368 ✓

3 $\sqrt[3]{\dfrac{42.81 \times 15.66}{9.099}}$

No.	log
42.81	1.6315
15.66	1.1948 +
①+②	2.8263
9.099	0.9590 −
x	1.8673 ÷3
$(1.8673)^{\frac{1}{3}}$	0.6224

$R.A. = \sqrt[3]{\dfrac{40 \times 15}{10}} = 4.$

antilogarithm = 4192
answer = 4.19 ✓

(10) A copper rolling mill transforms in less than 6 minute a rectangular bar of copper, $4\frac{1}{4}" \times 4\frac{1}{4}" \times 50"$ into a cylindrical rod of diameter $\frac{2}{3}"$ assuming that there is no change of volume, find the length of the rod to the nearest yard use logs. $\pi = 3.142$, radius = $\frac{1}{3}"$ 22-9-66

Length of rod = $\dfrac{4\frac{1}{4} \times 4\frac{1}{4} \times 50}{\pi r^2}$ ins.

No.	log
17	1.2304
17	1.2304
50	1.6990
	4.1598
3.142	0.4971
9	0.9542
	1.4513
	2.7085

$= \dfrac{17 \times 17 \times 50 \times 64}{4 \times 4 \times 3.142 \times 36}$ yds

$R.A. = \dfrac{20 \times 20 \times 50}{36}$

$= \dfrac{2000}{3} = 666.6$ antilog. = 5111
answer = 511.1 ✓

∴ New length of rod = 511.1 yds.

(10)

22/9/64