1 no A 10
1 no B 30 LCM
1 no C 30

Eff
1 no A 10
1 no B 20 LCM
-ve C 30 capacity

PIPE AND CISTERN

1 hr x 60 - min
½ x 60 : 30 min

Two pipes P and Q can fill an empty tank in 20 min and 10 min respectively. R can empty a full tank in 15 minutes. If all three pipes are opened together, how much time (in minutes) will they take to fill the tank?

1. 12 ✓
2. 18 ✗
3. 10 ✗
4. 15 ✗

3 P 20
6 Q 10
-4 -R 15
E 5

60 Ltr
W

$T = \frac{W}{E}$

$T = \frac{60}{5}$ = 12

Pipe P can fill a tank alone in 7 hours. Pipe Q can fill the same tank alone in 13 hours. In how much time can they together fill the tank?

1. 3 hours 18 minutes
2. 3 hours 45 minutes
3. 4 hours 12 minutes
4. 4 hours 33 minutes ✓

13 P 7 W

7 Q 13

$\frac{7}{20}$

$T = \frac{84}{20}$ at $4\frac{11}{20}$

$4\frac{11}{20}$ hr

$\frac{11}{20} \times 60$ min

$= 33$ min

A pipe can fill a tank in 18 hours. In how much time (in hours) will another pipe operating at one-third the efficiency of the first pipe fill a tank whose capacity is 50% of that of the first tank?

1. 36
2. 21
3. 45
4. 27 ✓

1 A 18 W 18

1/3 B ? 9

E W

W : T × E

1 × 1/3

1/3

50% : 1/2

T : W/E

3 A 18 54

1 B 27

$T = \frac{9}{1/3} = 9 \times 3 = 27$

27/1 = 27

Pipe D1 can fill an empty tank in 80 minutes and Pipe D2 can empty the same tank in 100 minutes. If pipes are opened simultaneously, then in how much time the tank gets completely filled?

1. 320 minutes
2. 400 minutes
3. 200 minutes
4. 240 minutes

5 D1 80 400 8 10 20 30 400

-4 -D2 100

1 400 min

400 : 400

Pipe A can fill a tank in 6 hours. Pipe B can fill the same tank in 8 hours. Pipe A, B and C together can fill the same tank in 12 hours. Then which of the following statements is true for pipe C?

1. It ~~can fill the tank~~ in 4 hours 40 minutes
2. It ~~can fill the tank~~ in 4 hours 48 minutes
3. It can empty the tank in 4 hours 48 minutes
4. It can empty the tank in 4 hours 40 minutes

EQ
A+B+C = 2
4+3+C = 2
C = 2-7
C = -5

4 A 6
3 B 8
2 A+B+C 12
-5 C
E

24
W

T = W/E = 24/5 = 4 4/5 hours

4/5 × 60 = 48 min

Pipe V1 can fill an empty tank in 8 hours. Pipe V2 can fill the same tank in 16 hours. Pipe V3 can empty the same, completely filled, tank in 12 hours. If three pipes are opened simultaneously, then in how much time will the tank get completely filled?

1. $\frac{41}{3}$ hours

2. $\frac{42}{11}$ hours

3. $\frac{38}{5}$ hours

4. $\frac{48}{5}$ hours ✓

6 V1 8 W
3 V2 16 48
-4 -V3 12

5E

T = W/E = 48/8 = 9 3/5

315 × 60/12 = 36

Pipe A can fill a tank in 10 hours. Pipe B can fill the same tank in 12 hours. Pipe C can empty the full tank in 16 hours. All the pipes are opened at 8 : 00 A.M. and Pipe A and B are closed at 10 : 00 A.M. After how much time from starting will the tank be empty?

1. 5 hours 52 minutes
2. 5 hours 24 minutes
3. 4 hours 30 minutes
4. 4 hours 8 minutes

24 A 10
20 B 12 240
-15 -C 16
29 x 2 = 58
48
10.08 = 2(5,24)
= 240

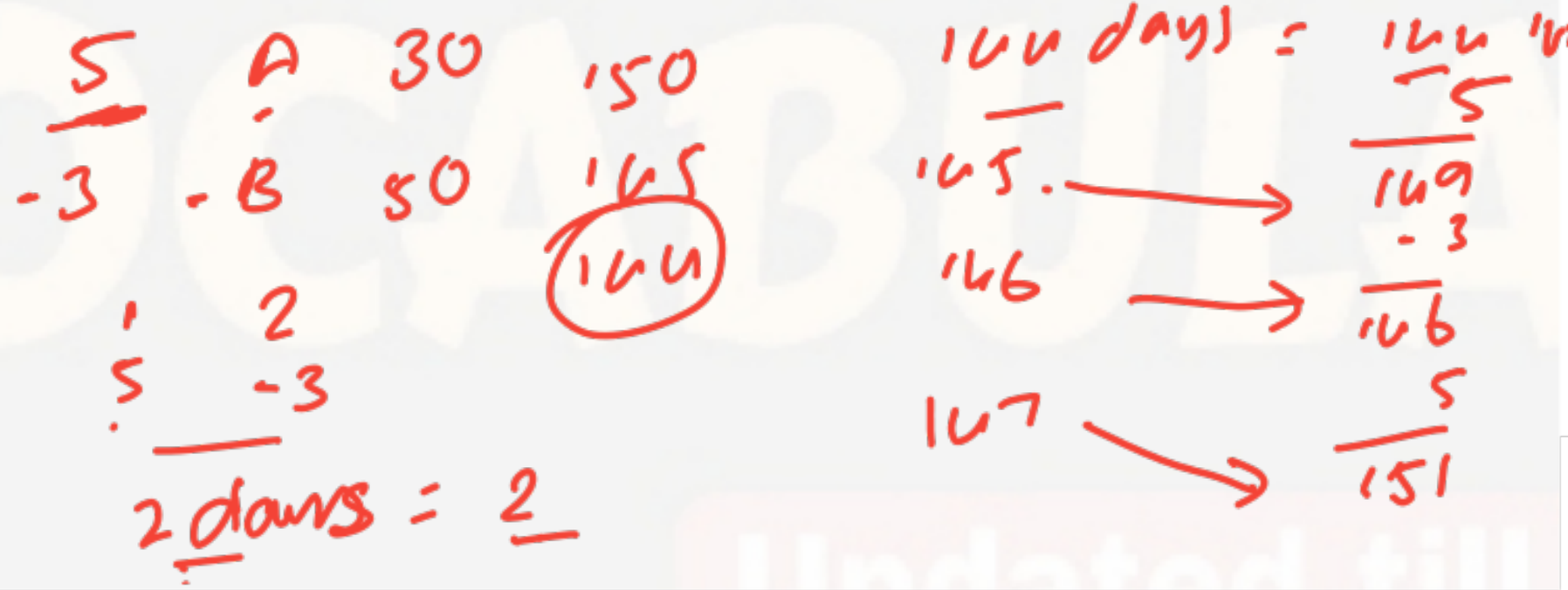
T = W/E = 58/15 hr = 3 13/15 hr

13/15 x 60 = 52 min

3hr + 3hr 52min
5hr 52min

An inlet pipe A originating from a river can fill a reservoir in 30 days. And an outlet pipe B, which is capable of emptying the completely filled reservoir in 50 days, drains out the water from the reservoir to an irrigation canal. The pipes are opened on alternate days starting with A. On which day from the beginning will the reservoir get completely filled for the first time?

1. 75^{th}
2. 147^{th}
3. 150^{th}
4. 74^{th}



A
B
C

B - 3

C - 5

TIME AND WORK

20 women together can complete a work in 16 days. 16 men together can complete the same work in 15 days. The ratio of the working capacity of a man to that of a woman is :

$20W \times 16 = 16M \times 15$

$W/M = 3/4$

$M : W = 4 : 3$

$\frac{M}{W} = \frac{4}{3}$

A, B and C can do a piece of work in 24, 30 and 40 days respectively. They began the work together but C left 4 days before completion of the work In how many days was the work done?

a)13 b)12 c)14 d)11

E W

5 A 24

4 B 30

3 C 40

$\frac{3}{\div 2}$

3xu :12

120

·2

132

11

2

A, B and C can complete a work in 10, 12 and 15 days respectively They started the work together But A left work before 5 days of its completion. B also left the work 2 days after A left. In how many days was the work completed?

a)4 days b)5 days c)7 days d)8 days

30 = 5 × 6

15 = 3 × 5

A 10

B 12

C 15

60

30

15

105

2×7

105

T = 15 = 7

3

A, B and C can do a piece of work in 30, 20 and 10 days respectively. A is assisted by B on one day and by C on the next day, alternately. How long would the work take to finish?

(a) $9\frac{3}{8}$ days

(b) $4\frac{8}{9}$ days

(c) $8\frac{4}{13}$ days

(d) $3\frac{9}{13}$ days

2 A 30

3 B 20

6 C 10

A+B A+C

8 work = 1

3 = 1/8 x3

= 3/8

W

60

A+B A+C A+B

4 x 2 days = 13 work x u

8 days = 52 work

9m = 5

3/8 + 9 days = 57

A and B working separately can do a piece of work in 9 and 12 days respectively. If they work for a day alternately with A beginning, in how many days half of the work would be completed ?

(a) 5 days

(b) $5\frac{2}{3}$ days

(c) $10\frac{1}{4}$ days

(d) 10 days

4 A 9

3 B 12

$\frac{36}{2} = 18$

1 2 3 4 5

A B A B A

1 2

A B

4 + 3 = 7

2 × 2 days = 7 work × 2

4 days = 10 work

$\frac{5^{th}\ day = 5}{5 = 18}$

A and B can complete a piece of work in 25 and 45 days respectively. B begins to do the work and they work alternatively one at a time for one day each. In how many days the whole work will be completed ?

(a) ~~32 days~~

(b) $32\frac{1}{5}$ days ✓

(c) ~~$18\frac{2}{3}$ days~~

(d) ~~$16\frac{1}{5}$ days~~

W

1 2 3 4

B A B A

A 25

225

25.45 : 5 (5,9)

= 225

B 45

5 work : 1 day

1 work : 1/5

1 2

5 9

32 = 16 × 2 days = 1 work × 16 = 224

32 days : 224

32 + 1/5 = 32 1/5

A and B working separately can do a piece of work in 12 days and 15 days respectively. If they work on alternate days beginning with A, in how many days will the work be completed?

(a) ~~15~~
(b) ~~18~~
(c) ~~13~~
(d) $13\frac{1}{4}$

A B A

5 A 12

60

4 B 15

13 days 59 work.

A B

5 + 4 = 9

6 x 2 days = 9 work x6

12 days = 54 work

13 m = $\frac{5}{59}$

+1/4

13 1/4

4 1

1 . 1/4