Chain Rules - Solved Examples

Q 1 - If 15 dolls cost Rs 35, what do 39 dolls cost?

A - Rs 71

B - Rs 81

C - Rs 91

D - Rs 101

Answer - C

Explanation

```
Let the required cost be Rs x.
More dolls, more cost  (direct)
∴ 15 : 39:: 35 : x ⇒15 *x = (39 *35)
⇒ x= (39 *35)/15 = 91.
∴  Cost of 39 dolls = Rs 91
```

Q 2 - If 36 men can do a piece of work in 25 days, in how many days will 15 men do it?

A - 30

B - 40

C - 50

D - 60

Answer - D

Explanation

```
Let the required number of days be x.
Less men, more days (indirect)
∴ 15: 36:: 25 : x ⇒ 15 *x = (36 * 25)
⇒ x= (36 *25 ) / 15 = 60.
∴ Required number of days = 60.
```

Q 3 - If 20 men can build a wall 112m long in 6 days, what length of a similar wall can be built by 25 men in days?

A - 40m

B - 50m

C - 60m

D - 70m

Answer - D

Explanation

```
Let the required length be x metres.
More men, more length built (direct)
Less days, less length built (direct)
Men 20 : 25 :: 112 : x
Days 6:3
∴ (20 * 6 *x ) =  ( 25 * 3 *112) ⇒ x= (25 * 3 * 112) / (20 * 6 ) = 70.
Required length 70m.
```

Q 4 - If 8 men working 9 hours a days can built a wall 18m long, 2 m broad and 12m high in 10 days, how many men will be required to build a wall 32m long , 3m broad and 9m high by working 6 hours a days, in 8 days?

A - 20

B - 30

C - 40

D - 50

Answer - A

Explanation

```
let the required number of  men be x.
More length, more men   (Direct)
More breadth, more men    (Direct)
Less height, less men      (Direct)
Less hours per day, more men    (Indirect)
Less days, more men       (Indirect)
Length       18:32
Breadth      2:3
Height       12:9 :: 8 : x
Hrs / Day    6: 9
Days         8:10
∴ ( 18 * 2 * 12 * 6 * 8 * x) = ( 32 * 3 * 9 * 9 * 10) ⇒ x= 32*3*9*9*10 /
18*2*12*6*8 =30.
```

Q 5 - A contract was to be completed in 56 days and 104 men were set to works, Each working 8 hours per days. After 30 days , 2/5 of the work is completed. How many additional men may be employed so that the work may be completed in time, each man now working 9 hours a day?

A - 36

B - 46

C - 56

D - 66

Answer - C

Explanation

```
Remaining work = (1- 2/5 ) = 3/5 , Remaining period = (56 – 30) =26 days.
Let the additional men employed be x.
More work , more men   (direct)
More days , less men      (indirect)
More hrs/ day, less men    (indirect)
Work      2/5 : 3/5
Days       26: 30 :: 104 : (104 + x)
Hrs/ day    9:8
∴ 2/5 *26 * 9 * (104 +x ) = 3/5 *30 * 8 * 104
⇒ (104 +x) = 3 * 30 * 8 * 104 / 2* 26 * 9  = 160 ⇒ x = (160 – 104) = 56.
Additional men to be employed = 56.
```

Q 6 - 5 men or 9 women can do a piece of work in 19 days. In how many days will 3 men and 6 women do it?

A - 12

B - 13

C - 14

D - 15

Answer - D

Explanation

```
9 women = 5 men ⇒ 1 women = 5/9 men
⇒ 6 women = (5/9 * 6) men = 10/3 men.
3 men +6 women =  (3+ 10/3 ) men = 19/3 men.
Let the required number of days be x.
More men, less days
19/3 : 5 :: 19 : x ⇒ 19 /3 *x = (5 *19)
⇒ x= (5* 19 * 3 /19 ) = 15.
∴ Required number of days = 15.
```

Q 7 - 8 women can complete the work in 10 days and 10 children take 16 days to complete the same work. How many days will 10 women and 12 children take to complete the work ?

A - 8

B - 7

C - 6

D - 5

Answer - D

Explanation

```
1 women can complete the work in (10 * 8) days= 80 days.
1 child can  complete the work in (16 * 10) days= 160 days.
1 women 1 days work = 1/80 , 1 child 1 days  work= 1/160.
(10 women +12 children) 1 days work = ( 10 * 1/80 +12 * 1/160)
=  ( 1/8 + 3/40 ) = 8/ 40  = 1 /5.
∴ 10 women and 12 children will finish the work in 5 days.
```

Q 8 - If 6 engines consume 15 metric tonnes of coal when each is running 9 hours a days , how much coal will be required for 8 engines, each running 12 hours a days, it being given that 3 engines of former type consume as much as 4 engines of latter type?

A - 17 tonnes

B - 18 tonnes

C - 19 tonnes

D - 20 tonnes

Answer - D

Explanation

```
Let the required quantity of coal consumed be x tones.
More engines, more coal consumption (direct)
More hours, more coal consumption     (direct)
Less rate of consumption, less consumption    (direct)
Engines      6:8
Working Hrs  9:12 :: 15 : x
Rate of consumption 1/3 : 1/4
∴ (6 * 9 * 1/3 * x) = (8 * 12 * 1/4 * 15 ⇒ 18x = 360 ⇒ x = 20.
Quantity of coal consumed = 20 tonnes.
```

Q 9 - If 22.5 m of a uniform rod weighs 85.5 kg , what will be the weight of 6m of the same rod?

A - 22.8 kg

B - 25.6 kg

C - 26.5 kg

D - 28kg

Answer - A

Explanation

```
Let the required weight be x kg.
Less length, less weight    (direct)
22.5: 6 :: 85.5 :x ⇒ 22.5x = (6 * 85.5) ⇒ x= (6 * 85.5) / 22.5 = (6 *885 / 225) = 22.8 kg.
Required weight = 22.8 kg.
```

Q 10 - On a scale of map 1.5cm represents 24km. If the distance between two points on the map is 76.5 cm, the distance between these points is:

A - 1071 km

B - 1224 km

C - 1377 km

D - None of these

Answer - B

Explanation

```
Let the actual distance be x km.
More distance on the map, more is actual distance           (direct)
1.5 : 76.5 :: 24 : x ⇒ 1.5x = (76.5 * 24) ⇒ x = (76.5 * 24) / 1.5 = 1224 km.
Required  distance= 1224km.
```

Q 11 - 6 dozen eggs are bought for Rs 48. How much will 132 eggs cost?

A - Rs 78

B - Rs 80

C - Rs 82

D - Rs 88

Answer - D

Explanation

```
Let the required cost be Rs x.
More eggs, more cost          ( direct)
72: 132 :: 48 : x ⇒ 72 x = (132 * 48) ⇒ x= (132 *48) / 72 = 88.
∴  Required  cost = Rs 88.
```

Q 12 - In a race, Raghu cover 5 km in 20 minutes, how much distance will he cover in 50 minutes?

A - 10.5 km

B - 12 km

C - 12.5 km

D - 13 km

Answer - A

Explanation

```
Let the required distance be x km.
More time , more distance covered            ( direct)
20: 50: :: 5 : x ⇒ 20x = (50 * 5 ) ⇒ x= (50 * 5)  / 20 = 12.5 km.
Required   distance = 12.5 km.
```