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Assignment:2

Home work2

1. The sum of denominator and numerator of a fraction is 3 less than twice the denominator. If each of the numerator and denominator is denominator is decreased by 1, the fraction becomes 1/2. Find the fraction.

**Solution:** Let the fraction required be x/y.

Sum of numerator and denominator = x + y

Given x + y is 3 less than twice the denominator → x + y = 2y - 3

x - y +3 = 0 → (1)

Also, if numerator and denominator are decreased by 1 → (x - 1), (y - 1)

The numerator becomes half of the denominator

(x-1) = (y-1)

2x - 2 = y – 1

2x - y =2 -1 =1

2x - y = 1 → (2)

Subtracting (2) and (1) gives x - y + 3 - (2x - y - 1) = 0

x - y + 3 – 2x + y + 1 = 0

-x + 4 =0

x = 4

Substituting x value in (1) gives 4 - y + 3 = 0

y = 7

Therefore x = 4 and y = 7;

***The fraction required is 4/7***

1. 4 men and 6 boys can finish a piece of work in 5 days while 3 men and 4 boys can finish it in 7 days. Find the time taken by 1 man alone or than by 1 boy alone.

**Solution:** Let 1 man alone can finish the work in X days and 1 boy alone can finish it in Y .  
Then,  
1 man's 1 days work = 1/X  
And,  
1 boy's 1 day's work = 1/Y  
(4 men's 1 day's work )+(6 boys 1 day's work )= 1/5  
=> 4/X + 6/Y = 1/5  
=> 4U + 6V = 1/5 [ Where 1/X = U and 1/Y =V]  
=> 4U + 6V = 1/5 --------(1)  
Again,  
( 3 men's 1 day's work ) + ( 4 boys 1 day's work ) = 1/7  
=> 3/X + 4/Y = 1/7  
=> 3U + 4V = 1/7 -------(2)  
On multiplying (1) by 3 and ,(2) by 4 we get,  
12U + 18V = 3/5 --------(3)  
And,  
12U + 16 V = 4/7 --------(4)  
Subtracting (3) and (4) we get,  
2V = ( 3/5 - 4/7)  
2V = 1/35  
V = 1/35 ×2  
V = 1/70  
1/Y = V  
1/Y = 1/70  
Y = 70 days  
Putting V = 1/70 in equation (1) we get,  
4U + 6V = 1/5  
4U = ( 1/5 - 6V )  
4U = ( 1/5 - 6/70 )  
4U = ( 14 - 6 /70)  
4U = ( 8/70)  
U = 8/70 × 1/4  
U = 1/35  
1/X = U  
1/X = 1/35  
X = 35 days  
Therefore,  
One man alone can finish the work in 70 days and One boy alone can finish the work in 35 days.

1. List price = $150

Trade discount = 20%

Find the net cost

**Solution:** Trade discount of 20% of $150 = 20/100\*150 = $30

**Net Cost=$150-$30=$120**

1. Example#2

List price = $150

Trade discount = 20/10 (series discount)

Find the net cost

**Solution:** Trade discount of 20% of $150 = 20/100\*150 = $30

Trade discount of 10% of $150 = 10/100\*150 = $15

Total Discount = $30+$15=$45

**Net Cost=$150-$45=$105**

1. Oaks hardware purchases an extension ladder list priced at $120. it is available at either a 10/15/10 discount or a 20/10 discount.

Which discount gives the lower price?

Find the difference in net cost

**Solution:** Trade discount of 10% of $120 = 10/100\*120 = $12

Trade discount of 15% of $120 = 10/100\*120 = $18

Trade discount of 20% of $120 = 20/100\*120 = $24

Net Cost=$120-$12=$108 (10%)

Net Cost=$120-$18=$102 (15%)

Net Cost=$120-$24=$96 (20%)

***20% Discount gives the lowest price which is $96.***