***RATIOS***

***Summary:***

***1. (i)*** *A ratio is a comparison between two similar quantities*

***(ii)*** *The ratio* ***x*** *to* ***y*** *is the same as* ***x: y*** *or *

***2. (i)*** *A ratio is in simplest form if it cannot be reduced any smaller****.*** *Thus the ratio*

***5:20 = 1:4***

***(ii)*** *Before a ratio can be stated the units must be the same. Thus the ratio*

***800g: 4kg = 800g: 4000g = 1:5***

***EXAMPLES:***

***1.*** *Find in simplest form the ratio* ***15*** *to* ***20***

***Soln:***

*Required ratio* ***15: 20*** *=* 

***2.*** *Find in simplest form the ratio* ***45*** *minutes to* ***2*** *hours*

***Soln:***

*Required ratio* ***45min: 2hrs*** *= 45min : 120 min*

*=* 

*=* ***3:8***

***3.*** *Find in simplest form the ratio* ***5: 10:30***

***Soln:***

*Required ratio* ***5: 10:30*** *=* 

*=* ***1:2:6***

***4.*** *Find in simplest form the ratio* ***1: 0⋅25:0⋅75***

***Soln:***

*Required ratio* ***1: 0⋅25:0⋅75*** *= 100: 25 : 75*

*=* 

*=* ***4:1:3***

***5.*** *Find in simplest form the ratio *

***Soln:***

***Hint:*** *Multiply each term by the* ***LCM***

*Required ratio =* 

*=* ***9:4***

***6.*** *Find in simplest form the ratio *

***Soln:***

***Hint:*** *Multiply each term by the* ***LCM***

*Required ratio  = *

*=* 

*=* ***3:12:22***

***7.*** *Arrange the ratios* ***2:3, 3:7, 3:4*** *and* ***2:5*** *in ascending order of magnitude*

***Soln:***

|  |  |
| --- | --- |
| **Ratio** | **Percentage form** |
| ***2:3*** |  |
| ***3:7*** |  |
| ***3:4*** |  |
| ***2:5*** |  |

*Required order is* ***2:5, 3:7, 2:3*** *and* ***3:4***

***9.*** *Give that* ***a : b = 3:5*** *and* ***b: c = 2:7,*** *find the ratio* ***a:b:c***

***Soln:***

***Hint:*** *In both ratios make the common term* ***b*** *correspond to the same value. Thus multiply* ***2*** *in the first ratio and* ***5*** *in the second ratio*

***a: b*** *= 3:5 =* 

***b: c*** *= 2:7 =* 

**

***Method II***

**

***10.*** *A sum of* ***Shs 60,000*** *is divided among three boys* ***P, Q*** *and* ***R*** *in the ratio****2:3:7.*** *Find how much did each get*

***Soln:***

***Total ratio =*** *2 + 3 + 7* ***= 12***

***P’s share =*** 

***Q’s share =*** 

***R’s share =*** 

***11.*** *A sum of* ***Shs 51,000*** *is divided among three boys* ***X, Y*** *and* ***Z*** *in the ratio* *Find the****:***

***(i)*** *smallest amount shared*

***(ii)*** *largest amount shared*

***Soln:***

***(i) Hint:*** *Multiply each term by the* ***LCM***

***X : Y : Z*** *=  =* ***6:3:8***

***Total ratio =*** *6 + 3 + 8* ***= 17***

***Smallest share =*** 

***(ii) Largest share =*** 

***12.*** *A sum of money is divided among three boys* ***A, B*** *and* ***C*** *in the ratio****2:3:5.*** *If* ***A*** *got* ***Shs 6,000,*** *find****:***

***(i)*** *the total amount shared*

***(ii)*** *how much did each of the other two get*

***Soln:***

***(i) Total ratio =*** *2 + 3 + 5* ***= 10***



***(ii) B’s share =*** 

***C’s share =*** 

***13.*** *A sum of money is divided among three boys* ***P, Q*** *and* ***R*** *in the ratio****18:16:11.*** *If* ***P*** *got* ***Shs 5,600*** *more than* ***R,*** *find how much did each get*

***Soln:***

***Total ratio =*** *18 + 16 + 11* ***= 45***

***Ratio difference =*** *18 − 11* ***= 7***



***P’s share =*** 

***Q’s share =*** 

***R’s share =*** 

***14.*** *A sum of* ***Shs 24,000*** *is divided among three boys Tom, Bob and Ben such that Bob gets twice as much as Tom and Ben gets thrice as much as Tom****.*** *Find****:***

***(i)*** *the ratio in which the money is shared*

***(ii)*** *how much does each get*

***Soln:***

***(i) Tom = x, Bob = 2x, Ben = 3x***

***Required ratio = x: 2x: 3x = 1:2:3***

***(ii) Total ratio =*** *1 + 2 + 3* ***= 6***

***Tom’s share =*** 

***Bob’s share =*** 

***Ben’s share =*** 

***15.*** *A sum of* ***Shs 55,000*** *is divided among three girls* ***P, Q*** *and* ***R*** *such that* ***Q*** *gets one and a half times as much as* ***P*** *and* ***R*** *gets a quarter of what* ***P*** *gets****.*** *Find****:***

***(i)*** *the ratio in which the money is shared*

***(ii)*** *how much does each get*

***Soln:***

***(i) P = x, Q =***  ***R =*** 

***Required ratio =*** ** ***= 4:6:1***

***(ii) Total ratio =*** *4 + 6 + 1* ***= 11***

***P’s share =*** 

***Q’s share =*** 

***R’s share =*** 

***16.*** *Tom and Bob contributed* ***Shs 400,000*** *and* ***Shs 600,000*** *respectively to run a business****.*** *They agreed to share the earned profits of* ***Shs 250,000*** *in the ratio of their contributions****.*** *Find how much does each get*

***Soln:***

***Ratio = 400,000: 600,000 = 2:3***

***Total ratio =*** *2 + 3* ***= 5***

***Tom’s share =*** 

***Bob’s share =*** 

***17.*** *In a class of* ***90*** *students****,*** *the ratio of boys to girls is* ***7:2.*** *Find how many more girls are required to join the class so that the ratio of boys to girls is* ***5:4.***

***Soln:***

***Total ratio =*** *7 + 2* ***= 9***

***No of boys =*** 

***No of girls =*** 

**

***18.*** *In a class of* ***126*** *students****,*** *the ratio of boys to girls is* ***5:2.*** *Find how many more girls are required to join the class so that the ratio of boys to girls is* ***3:2.***

***Soln:***

***Total ratio =*** *5 + 2* ***= 7***

***No of boys =*** 

***No of girls =*** 

**

***19.*** *Two numbers are in the ratio* ***3:4.*** *If their sum is* ***63,*** *find the two numbers*

***Soln:***

***x:y = 3:4***

***Total ratio =*** *3 + 4* ***= 7***

***x =*** 

***y =*** 

***Method II***

***x : y = 3:4 = 3a:4a***

***⇒*** *Originally,* ***x= 3a*** *and* ***y = 4a (****The ratio* ***3a:4a*** *simplifies to* ***3:4)***

*If x + y = 63*

***⇒*** *3a + 4a = 63*

***a = 9***

***∴ x =*** *3a = 3(9)* ***=27, y =*** *4a = 4(9)* ***= 36***

***20.*** *The sum of three numbers is* ***196.*** *If the ratio of the first to the second is* ***2:3*** *and that of the second to the third is* ***5:8,*** *find the second number*

***Soln:***

*If* ***A : B = 2:3*** *and* ***B: C = 5:8***

***⇒ A: B*** *= 2:3 =* 

***B: C*** *= 5:8 =* 

**

***Total ratio =*** *10 + 15 + 24* ***= 49***

***Value of B =*** 

***21.*** *The ages of Tom and Bob are in the ratio in the ratio* ***12:23.*** *After* ***9*** *years****,*** *the ratio of their age will be* ***3:5.*** *Find their present ages*

***Soln:***

***T : B = 12:23 = 12a:23a***

***⇒*** *Originally,* ***Tom = 12a*** *and* ***Bob = 23a (****The ratio* ***12a:23a*** *simplifies to* ***12:23)***

**

***⇒ Tom =*** *12a = 12(2)* ***= 24 years***

***Bob =*** *23a = 23(2)* ***= 46 years***

***22.*** *The salaries of Tom and Bob are in the ratio in the ratio* ***5:9.*** *If the salary of each is increased by* ***Shs 80,000,*** *the ratio of their salary will be* ***3:5.*** *Find their salaries after the increment*

***Soln:***

***T : B = 5:9 = 5a:9a***

***⇒*** *Originally,* ***Tom = 5a*** *and* ***Bob = 9a (****The ratio* ***5a:9a*** *simplifies to* ***5:9)***

**

***⇒ Tom =*** *5a + 80,000 = 5(80,000)**+ 80,000* ***= 480,000***

***Bob =*** *9a + 80,000 = 9(80,000)**+ 80,000* ***= 800,000***

***23.*** *Given that* ***x: y: z = 2:3:5,*** *find the value of* ***z*** *such that****:***

***(i) x + y + z = 250***

***(ii) y = 84***

***Soln:***

***(i) Total ratio =*** *2 + 3 + 5* ***= 10***

***∴ z =*** 



***⇒ z =*** 

***Method II***

***x : y: z = 2:3:5 = 2a: 3a:5a***

***⇒*** *Originally,* ***x= 2a, y = 3a*** *and* ***z = 5a***

*If x + y + z = 250*

***⇒*** *2a + 3a + 5a = 250*

***a = 25***

***∴ z =*** *5a = 5(25)* ***= 125***

***(ii) If y = 84***

***⇒ 3a = 84***

***a = 28***

***∴ z =*** *5a = 5(28)* ***= 140***

***23.*** *Given that* ***A: B: C = 1:3:6,*** *find the values of* ***A, B*** *and* ***C*** *such that****:***

***(i) ABC = 144***

***(ii) A + B + 2C = 80***

***(iii)*** 

***Soln:***

***(i) A : B: C = 1:3:6= y: 3y:6y***

***⇒*** *Originally,* ***A= y, B = 3y*** *and* ***C = 6y***

*If* ***ABC = 144***

***⇒*** *y(3y)(6y) = 144*



***y = 2***

***∴ A =*** *y* ***= 2, B =*** *3y = 3(2)* ***= 6 C =*** *6y = 6( 2)* ***= 12***

***(ii) A : B: C = 1:3:6= y: 3y:6y***

***⇒*** *Originally,* ***A= y, B = 3y*** *and* ***C = 6y***

*If* ***A + B + 2C = 80***

***⇒*** *y + 3y + 2(6y) = 80*

***y = 5***

***∴ A =*** *y* ***= 5, B =*** *3y = 3(5)* ***= 15 C =*** *6y = 6(5)* ***= 30***

***(iii) A : B: C = 1:3:6= y: 3y:6y***

***⇒*** *Originally,* ***A= y, B = 3y*** *and* ***C = 6y***

*If* 

***⇒*** 



***y = ±3***

***∴ A =*** *y* ***= ±3, B =*** *3y = 3(±3)* ***= ±9 C =*** *6y = 6(±3)* ***= ±18***

***25.*** *Give that the ratio* ***x:3 = 12:x,*** *find the positive value of* ***x***

***Soln:***

**

**

***16.*** *Give that* ***5x = 3y,*** *find the ratio****:***

***(i) x:y***

***(ii) (10x − 3y) : (3x + 2y)***

***Soln:***

**

**

***Method II***

***x : y = 3:5 = 3a:5a***

***⇒*** *Originally,* ***x= 3a*** *and* ***y = 5a (****The ratio* ***3a:5a*** *simplifies to* ***3:5)***

**

***26.*** *Give that* ***3x + 4y = 12y − 17x,*** *find the ratio****:***

***(i) x:y***

***(ii) (2x + y) : (x + 2y)***

***Soln:***

**

**

***Method II***

***x : y = 2:5 = 2a:5a***

***⇒*** *Originally,* ***x= 2a*** *and* ***y = 5a***

**

***27.*** *Give that* ***3(4p − 2q) : 5(p + q) = 2: 3,*** *find the ratio* ***q:p***

***Soln:***

**

***28.*** *Give that* ***2A = 3B = 4C,*** *find the ratio* ***A:B:C***

***Soln:***

*If* ***2A = 3B = 4C = x,***

***⇒*** *A* ***=*** *B* ***=****and**C* ***=***

*Required ratio* ***A:B:C*** *= *

*=* 

*=* ***6x:4x:3x***

*=* ***6:4:3***

***INCREASING AND DECREASING WITH RATIOS***

***Summary:***

***(i)*** *To increase or decrease a quantity in the ratio* ***a:b,*** *we multiply the quantity by the fraction *

***(ii)*** *For an increase****,*** * is an improper fraction and for a decrease it is a proper fraction*

***EXAMPLES:***

***1.*** *Increase* ***Shs******3600*** *in the ratio* ***5:3***

***Soln:***

***Increased value*** *= *

***2.*** *Decrease* ***Shs 5,400*** *in the ratio* ***7:9***

***Soln:***

***Increased value*** *= *

***3.*** *The fraction  becomes  when its numerator is increased in the ratio* ***3:1*** *and its denominator decreased in the ratio* ***2:3.*** *Find in simplest form the ratio* ***x:y***

***Soln:***

***New fraction*** *= *

***⇒***  **

***Required ratio x:y = 3:14***

***EER:***

***1.*** *Find in simplest form the ratio* ***500g*** *to* ***3kg***

***2.*** *Find in simplest form the ratio* ***50cm*** *to* ***2m***

***3.*** *Find in simplest form the ratio* ***8*** *days to* ***2*** *weeks*

***4.*** *Find in simplest form the ratio* ***6*** *seconds to* ***4*** *minutes*

***5.*** *Find in simplest form the ratio* ***1: 0⋅6:0⋅8***

***6.*** *Find in simplest form the ratio *

***7.*** *Give that* ***a : b = 2:3*** *and* ***b: c = 4:5,*** *find the ratio* ***a:b:c***

***8.*** *The dimension of a rectangular plot of land is* ***3⋅6m*** *and* ***9m.*** *Find the ratio of length to breadth in simplest form*

***9.*** *Give that* ***p : q = 5:8*** *and* ***z: q = 4:3,*** *find the ratio* ***p:z,*** *hence find* ***p*** *when* ***z = 96***

***9.*** *Arrange the ratios* ***5:6, 4:9, 7:8*** *and* ***1:2*** *in descending order of magnitude*

***10.*** *A sum of* ***Shs 3,600,000*** *was divided among six boys, three girls and one man in the ratio* ***4:5:3*** *respectively****.*** *Find how much each girl got*

***11.*** *There are* ***12*** *boys and* ***15*** *girls in a class****.*** *Find in simplest form the ratio of****:***

***(i)*** *boys to girls*

***(ii)*** *boys to the number of students in the class*

***12.*** *If*  *of the students in a class are boys****,*** *find in simplest form the ratio of boys to girls*

***13.*** *Given that* ***x: y = 6:4*** *and* ***x + y = 30,*** *find the values of* ***x*** *and* ***y***

***14.*** *Give that* ***3x = 2y,*** *find the ratio* ***x:y***

***13.*** *If* ***(M + n) : (M – n) = 8: 3,*** *find the ratio* ***M: n.***

***15.*** *Give that* ***x: y = 2:3,*** *find the ratio* ***(3x + 2y) : (9x − y)***

***16.*** *Give that* ***(3x − 5y) : (x − y) = 5: 3,*** *find the ratio* ***y:x***

***17.*** *Give that* ***x: y = 3:5,*** *find the ratio* ***(5x − 2y) : (x + 2y)***

***18.*** *A line of length* ***40cm*** *is divided in the ratio* ***3:5.*** *Find the length of each division*

***19.*** *Tom and Bob are* ***12*** *years and* ***9*** *years old respectively****.*** *They agreed to share a sum of* ***Shs 28,000*** *in the ratio of their ages****.*** *Find how much does each get*

***20.*** *The angles of a triangle are in the ratio* ***3:5:7.*** *Find the size of the****:***

***(i)*** *smallest angle*

***(ii)*** *largest angle*

***21.*** *A sum of* ***Shs 782,000*** *is divided among three boys* ***X, Y*** *and* ***Z*** *in the ratio* *Find how much did each get*

***22.*** *The sides of a right angled triangle are in the ratio* ***3:4:5.*** *If the length of its hypotenuse is* ***70mm,*** *find the length of the other two sides*

***23.*** *A sum of* ***Shs 90,000*** *is divided among three boys* ***X, Y*** *and* ***Z*** *in the ratio****2:3:7.*** *Find how much more did* ***Z*** *get**than* ***X***

***24.*** *A sum of money is divided among three boys* ***P, Q*** *and* ***R*** *in the ratio****9:7:5.*** *If* ***P*** *got* ***Shs 32,000*** *more than* ***R,*** *find how much did each get*

***25.*** *A sum of money is divided in the ratio* ***2:3:7*** *such that the largest amount shared is* ***Shs 21,000.****Find the****:***

***(i)*** *total amount shared*

***(ii)*** *smallest amount shared*

***26.*** *A sum of* ***Shs 40,000*** *is divided among three girls* ***P, Q*** *and* ***R*** *such that* ***R*** *gets six times as much as* ***Q*** *and* ***P*** *gets half of what* ***R*** *gets****.*** *Find****:***

***(i)*** *the ratio in which the money is shared*

***(ii)*** *how much does each get*

***27.*** *In a school of* ***300*** *students****,*** *the ratio of boys to girls is* ***31:44.*** *Find how many more girls are there in the school than boys*

***28.*** *In a mixture of* ***80*** *litres of milk and water****,*** *the ratio of milk to water is* ***1:3.*** *Find how much water should be added to the mixture so that the ratio becomes* ***2:7.***

***29.*** *A sum of* ***Shs 60,000*** *is divided among three girls* ***X, Y*** *and* ***Z*** *such that* ***Y*** *gets one and a half times as much as* ***X*** *and* ***Z*** *gets three and a half times as much as* ***X.*** *Find****:***

***(i)*** *the ratio in which the money is shared*

***(ii)*** *how much does each get*

***30.*** *A sum of* ***Shs 240,000*** *is divided among* ***Tom, Bob*** *and* ***Ben*** *such that Bob gets twice as much as Tom and Ben gets* ***Shs 15,000*** *more than Bob****.*** *Express the ratio of their share* ***Tom: Bob: Ben*** *in its simplest form*

***31.*** *Increase* ***60kg*** *in the ratio* ***7:5***

***32.*** *Decrease* ***90kg*** *in the ratio* ***2:3***

***33.*** *If* ***40%*** *of a number is equal to two−third of another number****,*** *find the ratio of the first number to the second number*

***34.*** *A sum of* ***Shs 12,000*** *is divided between* ***Tom*** *and* ***Bob*** *such that*  *of Tom’s share is equal to*  *of Bob’s share****.*** *Find****:***

***(i)*** *the ratio in which the money is shared*

***(ii)*** *how much does each get*

***35.*** ***Shs 12,000*** *is shared among* ***P, Q*** *and* ***R.******P*** *takes one−fifth of it****,******Q*** *takes one−sixth of the remainder and* ***R*** *takes what is left****.*** *Find****:***

***(i)*** *the ratio in which the money is shared*

***(ii)*** *how much does each get*

***36.*** *The ages of Tom and Bob are in the ratio in the ratio* ***3:5.*** *If* ***9*** *years ago****,*** *the ratio of their age was* ***12:23,*** *find their present ages*

***37.*** *The ages of Tom and Bob are in the ratio in the ratio* ***4:1.*** *After* ***6*** *years****,*** *the ratio of their age will be* ***5:2.*** *Find their present ages*

***38.*** *Give that* ***x: y = 1:2,*** *find the ratio* ***(2x + 3y) : (x + 4y)***

***39.*** *Give that* ***3A − B = 2A + B,*** *find the ratio****:***

***(i) A:B***

***(ii) (2A + B) : (A + 2B)***

***40.*** *Find the value of* ***x*** *in the ratio* ***x: 15 = 2:5***

***41.*** *Find the value of* ***x*** *in the ratio* ***(3x + 1) : 5 = (9x + 10) : 20***

***42.*** *Give that*  *find the ratio* ***y:x***

***3.*** *Tom and Bob started a business and they realized a profit of* ***Shs******81,000.*** *The profit was to be allocated to development, dividends and reserves in the ratio* ***4:5:6*** *respectively. The dividends were shared in the ratio of their ages. If their ages were* ***25*** *years and* ***20*** *years respectively****,*** *find how much each of them got.*

***4.*** *Tom, Bob, Ben, Abel and Adam were given a certain amount of money to share amongst them. Tom got  of the total amount, while Bob got  of the remainder. The remaining amount was shared equally among Ben, Abel and Adam each of which received* ***Shs 6,000.***

***(a)*** *Find how much was shared among the five business men*

***(b)*** *Find how much did Tom get*

***(c)*** *Tom, Bob and Ben invested their money and earned a profit of* ***Shs 12,000.*** *of the profit was left to maintain the business and the rest was shared in the ratio of their investments. Find how much each got.*

***MAP SCALES***

***Summary:***

***1.*** *A map whose scale is* ***1: 250,000,*** *means that* ***1cm*** *on the map is equal to* ***250,000cm*** *on the ground.*

***2.*** *A map scale written in fraction form is called* ***a representative fraction (RF).*** *Thus  is the representative fraction of a map with scale* ***1: 250,000.***

***3.*** *To determine distances and areas on the map, the following results apply****:***

***(i)******Actual distance*** *= map distance × converted scale*

***(ii)******Actual area*** *= map area ×* 

***4.*** *To convert the scale to different units, the following conversions apply****:***

***(i) 1m = 100cm = 1,000mm***

***(ii) 1km = 1000m = 100,000cm***

***EXAMPLES:***

***1.*** *Two towns are* ***8cm*** *apart on a map whose scale is* ***1: 250,000.*** *Find the distance in* ***km*** *between the two towns*

***Soln:***

***Actual distance*** *= map distance × scale in* ***km***

**

***2.*** *Two schools are* ***3⋅6cm*** *apart on a map whose representative fraction is  Find the distance in* ***km*** *between the two schools*

***Soln:***

***Actual distance*** *= map distance × scale in* ***km***

**

***3.*** *Two districts are* ***18km*** *apart****.*** *Find the distance in* ***cm*** *between them on a map whose scale is* ***1: 120,000.***

***Soln:***

***Actual distance*** *= map distance × scale in* ***km***

**

***4.*** *Two points are* ***5cm*** *apart on a map whose scale is* ***1: 240.*** *Find the distance in* ***m*** *between the two points*

***Soln:***

***Actual distance*** *= map distance × scale in* ***m***

**

***5.*** *On a certain map****,*** *a distance of* ***32cm*** *represents a distance of* ***40km*** *on the ground. Find the scale of the map*

***Soln:***

***Actual distance*** *= map distance × scale in* ***km***

**

***∴*** *Required scale =* ***1: 125,000***

***6.*** *On a certain map****,*** *a distance of* ***2⋅5cm*** *represents a distance of* ***6km*** *on the ground. Find the representative fraction* ***(RF)*** *of the map*

***Soln:***

***Actual distance*** *= map distance × scale in* ***km***

**

***∴*** *Required* ***RF*** *= *

***7.*** *Given that* ***3⋅6cm*** *on a map represents a distance of* ***5⋅4km*** *on the ground, find the distance in* ***km*** *of a road represented* ***6cm*** *by on the map*

***Soln:***

***Actual distance*** *= map distance × scale in* ***km***

**

***Actual distance*** *= map distance × scale in* ***km***

**

***8.*** *A forest covers an area of*  *on a map whose scale is* ***1: 50,000.*** *Find the area of the forest in* 

***Soln:***

***Actual area*** *= map area ×* 

**

***9.*** *A farm covers an area of*  *Find the area of the farm in*  *on a map whose representative fraction is *

***Soln:***

***Actual area*** *= map area ×* 

**

***10.*** *A piece of land measures* ***33⋅6m*** *by* ***16⋅5m.*** *Find the area of this land, in*  *on a map whose scale is* ***1: 120.***

***Soln:***

***Actual area*** *= map area ×* 

**

***11.*** *Given that an area of*  *on a map represents an area of*  *on the ground, find the scale of the map*

***Soln:***

***Actual area*** *= map area ×* 

**

***∴*** *Required scale =* ***1: 30,000***

***12.*** *Given that an area of*  *on a map represents an area of*  *on the ground, find the representative fraction* ***(RF)*** *of the map*

***Soln:***

***Actual area*** *= map area ×* 

**

***∴*** *Required* ***RF*** *= *

***13.*** *Given that an area of*  *on a map represents an area of*  *on the ground, find the distance in* ***km*** *of a road represented* ***6cm*** *by on the map*

***Soln:***

***Actual area*** *= map area ×* 

**

***Actual distance*** *= map distance × scale in* ***km***

**

***EER:***

***1.*** *Two towns are* ***8cm*** *apart on a map whose scale is* ***1: 250,000.*** *Find the distance in* ***km*** *between the two towns*

***2.*** *Two towns are* ***2km*** *apart****.*** *Find the distance in* ***cm*** *between them on a map whose scale is* ***1: 40,000.***

***3.*** *Two schools are* ***4⋅8cm*** *apart on a map whose representative fraction is  Find the distance in* ***km*** *between the two schools*

***4.*** *On a certain map****,*** *a distance of* ***2⋅5cm*** *represents a distance of* ***6km*** *on the ground. Find the scale of the map*

***5.*** *On a certain map****,*** *a distance of* ***5cm*** *represents a distance of* ***6km*** *on the ground. Find the representative fraction* ***(RF)*** *of the map*

***6.*** *Two points are* ***5cm*** *apart on a map whose scale is* ***1: 160.*** *Find the distance in* ***m*** *between the two points*

***7.*** *A forest covers an area of*  *on a map whose scale is* ***1: 15,000.*** *Find the area of the forest in* 

***8.*** *A farm covers an area of*  *Find the area of the farm in*  *on a map whose representative fraction is *

***9.*** *Given that an area of*  *on a map represents an area of*  *on the ground. Find the representative fraction* ***(RF)*** *of the map*

***10.*** *A lake covers an area of*  *Find the area of the lake in*  *on a map whose representative fraction is *

***11.*** *Given that* ***3⋅6cm*** *on a map represents a distance of* ***5⋅4km*** *on the ground, find the distance in* ***km*** *of a road represented* ***6cm*** *by on the map*

***12.*** *A piece of land measures* ***33⋅6m*** *by* ***16⋅5m.*** *Find the area of this land, in*  *on a map whose scale is* ***1: 120.***

***13.*** *Given that an area of*  *on a map represents an area of*  *on the ground, find the scale of the map*

***14.*** *Given that an area of*  *on a map represents an area of*  *on the ground, find the representative fraction* ***(RF)*** *of the map*

***15.*** *Given that an area of*  *on a map represents an area of*  *on the ground, find the distance in* ***km*** *of a road represented* ***6cm*** *by on the map*