EXERCISE 4.3 PAGE NO: 4.12

1. Determine whether the following rational numbers are in the lowest form or not:
(i) (65/84)
(ii) (-15/32)
(iii) (24/128)
(iv) (-56/-32)

Solution:
(i) Given (65/84)
Here we can observe that 65 and 84 have no common factor their HCF is 1.
Thus, (65/84) is in its lowest form.

(ii) Given (-15/32)
Here we can observe that -15 and 32 have no common factor i.e., their HCF is 1.
Thus, (-15/32) is in its lowest form.

(iii) Given (24/128)
Here we can observe that HCF of 24 and 128 is not 1.
Thus, given rational number is not in its simplest form.

(iv) Given (-56/-32)
Here we can observe that HCF of 56 and 32 is 8 and also not equal to 1.
Therefore the given rational number is not in its simplest form.

2. Express each of the following rational numbers to the lowest form:
(i) (4/22)
(ii) (-36/180)
(iii) (132/-428)
(iv) (-32/-56)

Solution:
(i) Given (4/22)
We know that HCF of 4 and 22 is 2
By dividing the given number by its HCF we get
(4 ÷ 2/22 ÷ 2) = (2/11)
Therefore (2/11) is the simplest form of the given number

(ii) Given (-36/180)
We know that HCF of 36 and 180 is 36
By dividing the given number by its HCF we get
(-36 ÷ 36/180 ÷ 36) = (-1/5)
Therefore (-1/5) is the simplest form of the given number

(iii) Given (132/-428)
We know that HCF of 132 and 428 is 4
By dividing the given number by its HCF we get
(132 ÷ 4/-428 ÷ 4) = (33/-107)
Therefore (33/-107) is the simplest form of the given number

(iv) Given (-32/-56)
We know that HCF of 32 and 56 is 8
By dividing the given number by its HCF we get
(-32 ÷ 8/-56 ÷ 8) = (4/7)
Therefore (4/7) is the simplest form of the given number

3. Fill in the blanks:
(i) (-5/7) = (…/35) = (…/49)
(ii) (-4/-9) = (…/18) = (12/…)
(iii) (6/-13) = (-12/…) = (24/…)
(iv) (-6/…) = (3/11) = (…/-55)

Solution:
(i) (-5/7) = (-25/35) = (-35/49)

Explanation:
Given (-5/7) = (…/35) = (…/49)
Here (-5/7) × (5/5) = (-25/35)
And also (-5/7) × (7/7) = (-35/49)

(ii) (-4/-9) = (8/18) = (12/27)

Explanation:
Given (-4/-9) = (…/18) = (12/…)

On multiplying by -2 we get
(-4/-9) × (-2/-2) = (8/18)
Also on multiplying by -3
(-4/-9) × (-3/-3) = (12/27)

(iii) (6/-13) = (-12/26) = (24/-52)

Explanation:
Given (6/-13) = (-12/…) = (24/…)
On multiplying by -2
(6/-13) × (-2/-2) = (-12/26)
Also multiplying by 4
And also (6/-13) × (4/4) = (24/-52)

(iv) (-6/-22) = (3/11) = (-15/-55)

Explanation:
Given (-6/…) = (3/11) = (…/-55)
0n multiplying by -2
(3/11) × (-2/-2) = (-6/-22)
And also on multiplying by -5
(3/11) × (-5/-5) = (-15/-55)