-21 ÷ 3 =

-14
7

Divide 11110010 by 00000111

dividend is in 2's complement representation and divisor is in true form. the answer (quotient) will be negative number.

convert Dividend to true form.

11110010 ⟶ 00001110

-14 +14, we will use this

To subtract divisor, we add in complement form. 00000111 ⟶ 11111001

+7 -7

	q = 00000000
00001110	
+ 11111001	
00000111	q = 00000001
+ 11111001	
00000000	q = 00000010

remainder = 0 q = 00000010

Remember, the result (q) should be negative

therefore 00000010 ⟶ 11111110

+2 -2

Answer: 11111110_2

-21
-3

Divide 11101011 by 11111101

The result will be positive.

Dividend 11101011 ⟶ 00010101

```
  00010101          q = 00000000
+ 11111101
----------
  00010010          q = 00000000
+ 11111101
----------
  00001111          q = 00000010
+ 11111101
----------
  00001100          q = 00000011
+ 11111101
----------
  00001001          q = 00000100
+ 11111101
----------
  00000110          q = 00000101
+ 11111101
----------
  00000011          q = 00000110
+ 11111101
----------
  00000000          q = 00000111
```

Since the answer should be positive,

$q = 00000111_2$

$-21 \div 3 = -7$

result

-21
3

Divide 11101011 by 00000011

the result will be negative.

repeating the same procedure

```
  00010101
+ 11111101
----------
        :
        :
        :
----------
 100000000      q = 00000111
```

Since, the answer is negative we convert q into complement form.

$$\underbrace{00000111}_{+7} \longrightarrow \underbrace{11111001}_{-7}$$

$$q = 11111001_2$$

22
7

Divide 00010110 by 00000111

The answer will be a positive number

$$00000111 \longrightarrow 11111001$$

```
  00010110        q = 00000000
+ 11111001
------------
  00001111        q = 00000001
+ 11111001
------------
  00000000        q = 00000010
+ 11111001
------------
  00000001        q = 00000011   = 3
```

we can stop here since the remainder is less than divisor.

or

```
  00000001
+ 11111001
------------
  11111010   ---> negative result. Stop here
```

but don't increase the quotient values.

Answer: Since it is a positive number

$q = 00000011_2$

$r = 00000001_2$

of this way

$-21 \div 3 = -7$

100 x 15

Multiply 01100100 by 00001111

The result will be in positive form.

```
  01100100
* 00001111
----------
  01100100
+ 01100100x
----------
  100101100 ✓
+ 011001000x
----------
  101011100 ✓
+ 0110010000xx
--------------
  1010111100
```

↓

Answer: 0000101111100