6. 111101 · 111110

$-5_{10} \cdot -6_{10}$

3 bits each, so result needs 6 bits.

```
   111101
   111110
   ------
  1111010
 1111010
 1111010
 1111010
 1111010
 1111010
 ------
 000100110
```

111011_{I6} · 111010_{I6}

```
   111011
   111010
   ------
   000000
  000000
 000000
 000000
 000000
 000000
 ------
 000000000
```

```
   111011
   111010
   ------
   000000
  000000
 000000
 000000
 000000
 000000
 ------
 000000000
```

$2+8+16$

```
   111011
   111010
   ------
   000000
  000000
 000000
 000000
 000000
 000000
 ------
 000000000
```

$16+8+4+2 = \boxed{30_{10}}$

7. $9.5_{10} \cdot 2.625_{10}$

$010011_{I5Q1} \cdot 010101_{I3Q3}$

Result is I8Q4

```
   010011
   010101
   ------
   010011
  010011
 000000
 ------
 000011001111
```

$16+8+.5+.25+.125+.0625$

$\boxed{24.9375_{10}}$

8. $-1.25_{10} \cdot 3.5_{10}$

0101_{I2Q2} → 1011_{I2Q2}

0111_{I3Q1}

result in I5Q3

```
   1011
   0111
   ----
   1011
  1011
 1011
 ----
 1011001
```

11011101

00100.011

```
   11110.110
   00011.100
   ---------
   1111.0110000
  11110110000
 11110110000
 ------------
 1011.1010000
```

00100.010

00100.011

$-(4+.25+.125)$

$\boxed{-4.375_{10}}$

invert

11011.101_{I5Q3}