

1.

$$1) 2^0 + 2^3 + 2^5 + 2^6 = 1 + 8 + 32 + 64 = 105 \text{ (decimal)}$$

$$2) 2^1 + 2^5 + 2^7 = 2 + 32 + 128 = 162 \text{ (decimal)}$$

$$3) 2^0 + 2^1 + 2^4 = 1 + 2 + 16 = 19 \text{ (decimal)}$$

$$4) 2^0 + 2^2 + 2^4 + 2^5 = 1 + 4 + 16 + 32 = 53 \text{ (decimal)}$$

2.

$$\begin{array}{r} 1) 2 \overline{) 182} \dots 0 \\ 2 \overline{) 91} \dots 1 \\ 2 \overline{) 45} \dots 1 \\ 2 \overline{) 22} \dots 0 \\ 2 \overline{) 11} \dots 1 \\ 2 \overline{) 5} \dots 1 \\ 2 \overline{) 2} \dots 0 \\ 1 \end{array}$$

answer:

$$10110110 \text{ (binary)}$$

$$2) \begin{array}{c} 100 \\ \swarrow \downarrow \downarrow \end{array}$$

$$\begin{array}{r} 001 \ 000 \ 000 \\ \hline 2^0 \quad 0 \quad 0 \end{array}$$

answer:

$$1000000 \text{ (binary)}$$

$$3) \begin{array}{c} 1024 \\ \swarrow \downarrow \downarrow \searrow \end{array}$$

$$\begin{array}{r} 000 \ 0000 \ 0010 \ 0100 \\ \hline 2^0 \quad 0 \quad 2^1 \quad 2^2 \end{array}$$

answer:

$$1000000100100 \text{ (binary)}$$

$$4) \begin{array}{c} 70 \\ \swarrow \downarrow \end{array}$$

$$\begin{array}{r} 111 \ 000 \\ \hline 2^0 + 2^1 + 2^2 \quad 0 \end{array}$$

answer:

$$111000 \text{ (binary)}$$

3.

$$\begin{array}{cccc} 1111 & 0101 & 0011 & 110 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 15 & 10 & 12 & 14 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ F & A & C & E \end{array}$$

$$\text{FACE}_{16}$$

4. 1) 8A D 0

↓ ↓ ↓ ↓

= 8 10 13 0

↙ ↘ ↙ ↘

$\frac{1000}{2^3}$ $\frac{1010}{2^3+2^1}$ $\frac{1101}{2^3+2^2+2^0}$ $\frac{0000}{0}$

answer:

1000 1010 1101 0000 (binary)

2) B 7 4 E

↓ ↓ ↓ ↓

11 7 4 14

↙ ↘ ↙ ↘

$\frac{1011}{2^3+2^1+2^0}$ $\frac{0111}{2^2+2^1+2^0}$ $\frac{0100}{2^2}$ $\frac{1110}{2^3+2^2+2^1}$

answer:

1011 0111 0100 1110 (binary)

5. 3.5 * 4 1 2 - 2.5 is

3.5 * 4 1 2 - 2.5

← (a new line here)

6.

6. Identify and fix the errors in the following code:

```
public class Welcome {
    public void main(String[] args) {
        System.out.println("Welcome to Java");
    }
}
```

error

public static void main (String[] args) {

↓

this word was missing