**Section 5 Practice Questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 4 | 2 | 1 | 0.5 | 0.25 | 0.125 | 0.0625 |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |

6.125 = 01100010

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| -128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

= 11000111

3.

4.

1. 0.0110000 0010

Mantissa = 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 1. | 1 | 0 | 0 | 0 | 0 |
| 4 | 2 | 1 | 0.5 |  |  |  |  |

= 1.5

1. 1.0010100 0100

Mantissa = 4

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 0 | 0 | 1 | 0. | 1 | 0 | 0 |
| -16 | 8 | 4 | 2 | 1 | 0.5 |  |  |

= -16 + 2.5

= -13.5

5. -7.5 in binary

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| -8 | 4 | 2 | 1. | 0.5 | 0.25 | 0.125 | ------- | 0 | 0 | 1 | 1 |
| 1 | 0 | 0 | 0 | 1 | 0 | 0 | ------- | 8 | 4 | 2 | 1 |

-7.5 = 1000100 0011

6.

a. Compression – uses less bits to store

b. 10110111 0111110 into hex

1011 = 11 = B

0111 = 7 = 7

0111 = 7 = 7

1110 = 14 = E

= B7 7E

1. E4 in decimal

E = 14

7.

1. Sample rate, when increased means there are more samples taken per second and this allows you to hear the sound in higher detail
2. Need to be converted to digital as computers can’t handle analogue sound frequencies
3. .

8.

1. Modifying a string with a key so it is unreadable without said key
2. Caser Cipher shift one place in ASCII character set – Head South = Ifbe!Tpvui