

Started on	Monday, 2 December 2019, 3:11 PM
State	Finished
Completed on	Monday, 2 December 2019, 5:03 PM
Time taken	1 hour 51 mins
Marks	36.00/36.00
Grade	10.00 out of 10.00 (100%)

Question 1

Correct

Mark 10.00 out of 10.00

For each number, select the number whose value is equal.

9.765625 × 10 ⁻³	0.009765625	✔
1.625 × 2 ¹	3.25	✔
4.480000e+02	448.0	✔
7.812500e-03	0.0078125	✔
1.600000e+01	16.0	✔
2.600000e+01	26.0	✔
1.875 × 2 ⁻¹	0.9375	✔
1.44 × 10 ²	144.0	✔
1.625 × 2 ⁸	416.0	✔
1.375 × 2 ⁴	22.0	✔
1.4 × 10 ¹	14.0	✔
1.71875 × 10 ⁻¹	0.171875	✔
1.125 × 2 ⁻³	0.140625	✔
3.0 × 10 ⁰	3.0	✔
8.750000e-01	0.875	✔

The correct answer is: 9.765625 × 10⁻³ → 0.009765625, 1.625 × 2¹ → 3.25, 4.480000e+02 → 448.0, 7.812500e-03 → 0.0078125, 1.600000e+01 → 16.0, 2.600000e+01 → 26.0, 1.875 × 2⁻¹ → 0.9375, 1.44 × 10² → 144.0, 1.625 × 2⁸ → 416.0, 1.375 × 2⁴ → 22.0, 1.4 × 10¹ → 14.0, 1.71875 × 10⁻¹ → 0.171875, 1.125 × 2⁻³ → 0.140625, 3.0 × 10⁰ → 3.0, 8.750000e-01 → 0.875

Question 2

Correct

Mark 1.00 out of 1.00

Can the number 2.3125 be represented exactly in IEEE floating point format?

Select one:

☒ a. Yes

☐ b. No

The correct answer is: Yes

Question 3

Correct

Mark 1.00 out of 1.00

Can the number 35.04 be represented exactly in IEEE floating point format?

Select one:

- ☐ a. Yes
- ☒ b. No ✓

The correct answer is: No

Question 4

Correct

Mark 1.00 out of 1.00

Can the number 1.900 be represented exactly in IEEE floating point format?

Select one:

- ☐ a. Yes
- ☒ b. No ✓

The correct answer is: No

Question 5

Correct

Mark 1.00 out of 1.00

Can the number 6.35 be represented exactly in IEEE floating point format?

Select one:

- ☐ a. Yes
- ☒ b. No ✓

The correct answer is: No

Question 6

Correct

Mark 1.00 out of 1.00

Can the number 0.5475 be represented exactly in IEEE floating point format?

Select one:

- ☐ a. Yes
- ☒ b. No ✓

The correct answer is: No

Question 7

Correct

Mark 1.00 out of 1.00

Can the number 1.5625 be represented exactly in IEEE floating point format?

Select one:

- ☒ a. Yes ✓
- ☐ b. No

The correct answer is: Yes

Question 8

Correct

Mark 1.00 out of 1.00

Can the number 29.00 be represented exactly in IEEE floating point format?

Select one:

- ☒ a. Yes ✓
- ☐ b. No

The correct answer is: Yes

Question 9

Correct

Mark 1.00 out of 1.00

Can the number 4.32 be represented exactly in IEEE floating point format?

Select one:

- ☐ a. Yes
- ☒ b. No ✓

The correct answer is: No

Question 10

Correct

Mark 1.00 out of 1.00

Can the number 2.25 be represented exactly in IEEE floating point format?

Select one:

- ☒ a. Yes ✓
- ☐ b. No

The correct answer is: Yes

Question 11

Correct

Mark 1.00 out of 1.00

Can the number 18 be represented exactly in IEEE floating point format?

Select one:

- ☒ a. Yes ✓
- ☐ b. No

The correct answer is: Yes

Information

This part of the worksheet is about basic operations on vectors, including the use of Pythagoras' Theorem to find the length of a vector or the distance between two points.

Almost all games involve objects moving around in 2D or 3D space, and an understanding of the mathematics of vectors is essential to programming this movement.

You may find it useful to read the following BBC Bitesize GCSE revision guides before attempting this quiz:

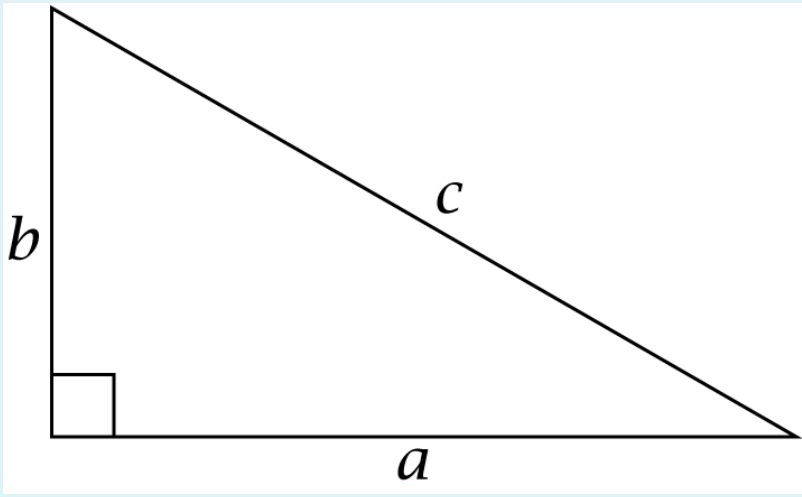
[Vectors](#)

[Pythagoras' Theorem](#)

Question 12

Correct

Mark 1.00 out of 1.00



Consider a right-angled triangle with hypotenuse length c and other side lengths a and b . According to Pythagoras' Theorem, which of the following is true?

Select one:

- ☐ $c = a + b$
- ☐ $c^2 = a^2 \times b^2$
- ☒ $c^2 = a^2 + b^2$ ✓
- ☐ $a^2 = b^2 + c^2$
- ☐ $c^a = c^b$

Your answer is correct.

The correct answer is: $c^2 = a^2 + b^2$

Question 13

Correct

Mark 1.00 out of 1.00

Calculate the length of the vector $(0, 2)$, giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 2

Question 14

Correct

Mark 1.00 out of 1.00

Calculate the length of the vector $(5, 11)$, giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 12.08

Question 15

Correct

Mark 1.00 out of 1.00

Calculate the length of the vector $(11, -4)$, giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 11.7

Question 16

Correct

Mark 1.00 out of 1.00

Calculate the length of the vector (8, -11), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 13.6

Question 17

Correct

Mark 1.00 out of 1.00

Calculate the length of the vector (11, -19), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 21.95

Question 18

Correct

Mark 1.00 out of 1.00

Let A = (5, 5) and B = (2, 8).

Subtract the vectors: A-B = (✓ , ✓)

Question 19

Correct

Mark 1.00 out of 1.00

Therefore calculate the distance between A = (5, 5) and B = (2, 8), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 4.24

Question 20

Correct

Mark 1.00 out of 1.00

Let A = (0, 8) and B = (7, 10).

Subtract the vectors: A-B = (✓ , ✓)

Question 21

Correct

Mark 1.00 out of 1.00

Therefore calculate the distance between A = (0, 8) and B = (7, 10), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 7.28

Question 22

Correct

Mark 1.00 out of 1.00

Let A = (6, -10) and B = (-10, -3).

Subtract the vectors: A-B = (✓ , ✓)

Question 23

Correct

Mark 1.00 out of 1.00

Therefore calculate the distance between A = (6, -10) and B = (-10, -3), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 17.46

Question 24

Correct

Mark 1.00 out of 1.00

Let A = (-10, 3) and B = (9, -2).

Subtract the vectors: A-B = (✓ , ✓)

Question 25

Correct

Mark 1.00 out of 1.00

Therefore calculate the distance between A = (-10, 3) and B = (9, -2), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 19.65

Question 26

Correct

Mark 1.00 out of 1.00

Let A = (7, -7) and B = (7, 0).

Subtract the vectors: A-B = (✓ , ✓)

Question 27

Correct

Mark 1.00 out of 1.00

Therefore calculate the distance between A = (7, -7) and B = (7, 0), giving your answer to 2 decimal places.

Answer: ✓

The correct answer is: 7