

21 Today #1
Brief Answers

GCSE Mathematics
Twenty-One Today

Answer 1

$$f(-1) = \frac{7 \times (-1)^2 + 5}{2} = 6$$

[1 mark]

Answer 2

(i) $A = 63^\circ$ **(ii)** 126°

[1, 1 marks]

Answer 3

$$D = S \times T = 70 \times 1.3333... = 93 \text{ miles}$$

[2 marks]

Answer 4

(i) 3 **(ii)** 12

[1, 1 marks]

Answer 5

$$\sqrt{0.34^2 - 0.16^2} = 0.3 \text{ metres}$$

[2 marks]

Answer 6

(i) (4, 7) **(ii)** (-8, 5) **(iii)** (anything, 6)

[1, 1, 1 marks]

Answer 7

(i) $x = 1$ **(ii)** $y = -2$ **(iii)** $z = 0.5$

[1, 1, 1 marks]

Answer 8

$$7.8328 \times 10^4$$

[1 mark]

Answer 9

$$f^{-1}(x) = \frac{x + 9}{4}$$

[1 mark]

Answer 10

$$\frac{13}{20} \times 100 = 65\%$$

[1 mark]

Answer 11

$$\frac{x^2 - 25}{x + 5} = \frac{(x - 5)(x + 5)}{(x + 5)} = x - 5$$

[1 mark]

Answer 12

(i) $y = x^3 - 3x^2 \Rightarrow \frac{dy}{dx} = 3x^2 - 6x$

[1 mark]

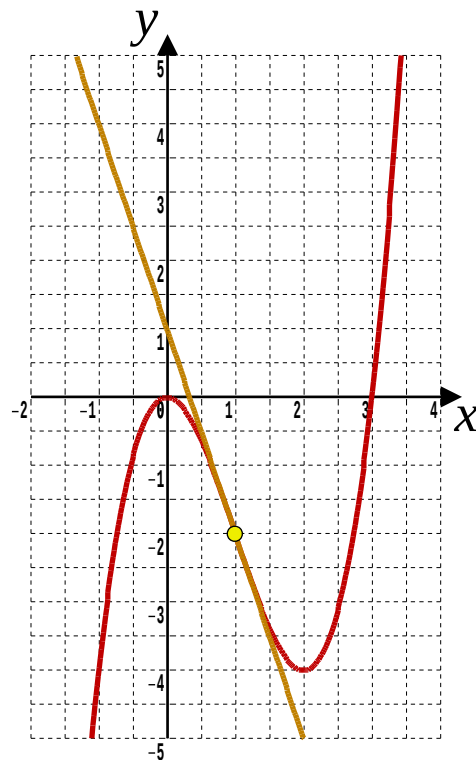
(ii) When $x = 1$, $\frac{dy}{dx} = -3$

[1 mark]

(iii) $y = mx + c \quad \therefore y = -3x + 1$

[2 marks]

(iv)



[1 mark]

Answer 13

If $2^x = 8$, then $x = 3$

[1 mark]

Answer 14

$(0, 7)$

[1 mark]

Answer 15

0.0000476

[1 mark]

Answer 16

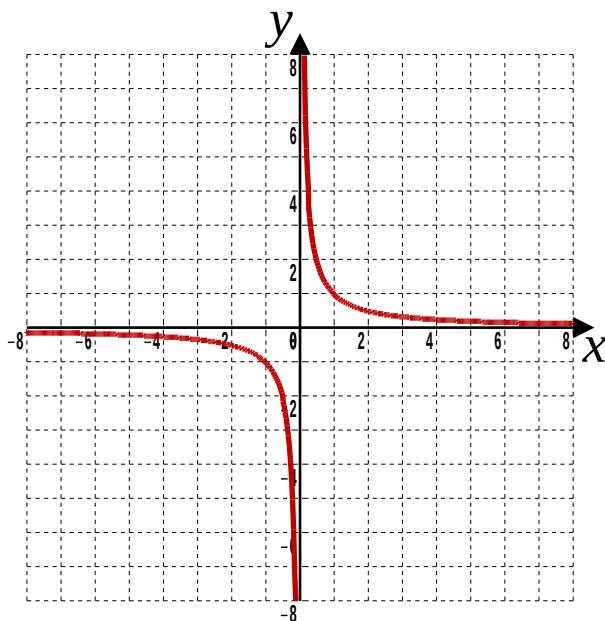
(i) $(x + 5)(x + 2)$

[1 mark]

(ii) Either $x = -5$ or $x = -2$

[1 mark]

Answer 17



[1 mark]

Answer 18

$$\frac{1}{10x^3}$$

[2 marks]

Answer 19

(i) A “product” is a “multiplication”

[1 mark]

(ii) $225 = 3 \times 3 \times 5 \times 5$

[1 mark]

Answer 20

Double second equation...

$$\begin{array}{rcl} 3x - 2y & = & 2 \\ \text{ADD} & & \\ 2x + 2y & = & 18 \\ \hline 5x & = & 20 \end{array} \quad \therefore x = 4 \text{ and } y = 5$$

[4 marks]

Answer 21

5050

[2 marks]