QT Quick Test 5E

1. Amanda, Brice and Cas save some money in the ratio 3:4:9. Cas saved £150 more than Brice.

a. Show that Amanda saved £90

A : B : C
3 : 4 : 9

+5

×30

90 : 120 : 270

Amanda saves £90

b. Show that the total amount of money saved is £480

90 + 120 + 270 = £480

(3 marks)

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2. Write these numbers in order of size. Start with the smallest number.

4×10^8 42×10^6 0.044×10^{10} 4400×10^4 ⬅

40000×10^4 4200×10^4 44000×10^4 ②
①   ③   ④

42×10^6, 4400×10^4, 4×10^8, 0.044×10^{10}

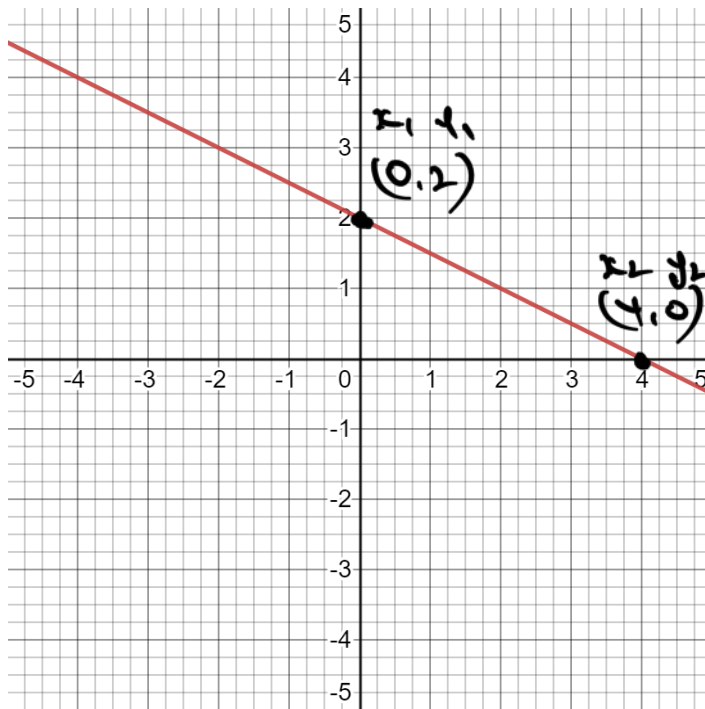(3 marks)

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3. Simplify $(2a^3b^2)^3$

$$8a^9b^6$$

(2 marks)

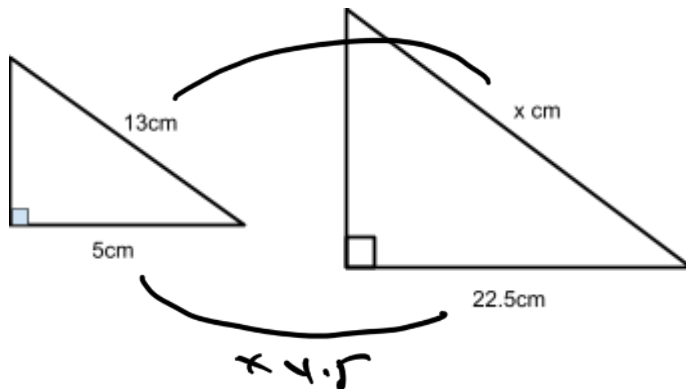4. The line L is drawn on the grid below. Find the gradient of line L.

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$x_1 \ y_1$
$(0,2)$

$x_2 \ y_2$
$(4,0)$

$$\frac{0 - 2}{4 - 0} = \frac{-2}{4}$$

$$= -\frac{1}{2}$$

(2 marks)

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5. These triangles are mathematically similar. Calculate the value of x.

13cm

5cm

x cm

22.5cm

$13 \times 4.5 = 58.5$

$\therefore x = 58.5 cm$

$x \, 4.5$

(2 marks)

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6. Shruti buys a house for £192 000. After 3 years Shruti sells the house for £215 000. Calculate the percentage profit Shruti makes. Give your answer correct to 2 decimal places.

$\% \text{ change} = \dfrac{\text{Difference}}{\text{original}} \times 100$

$= \dfrac{23,000}{192,000} \times 100$

$= 11.98\%$

(3 marks)

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7. A map has a scale of 1 : 40000. The distance between two points on the map is 8cm. Work out the real distance between the two points. Give your answer in kilometres.
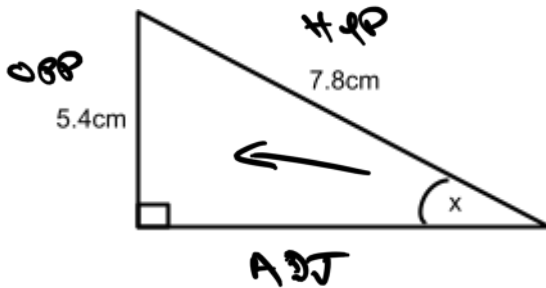
$1 : 40000$

$8 : 320,000 \text{ cm}$

$: 3200 m$

$: 3.2 km$

$3.2 km.$

(3 marks)

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8. Work out the size of the angle x. Give your answer correct to 3 significant figures.

HYP
7.8cm

OPP
5.4cm

ADJ

x

SOH CAH TOA

$$\sin x = \frac{5.4}{7.8}$$

$$\sin^{-1}(ANS) = \underline{43.8°}$$

(3 marks)

9. Solve the equation $9(2x - 1) = 4(5x - 4)$

$$18x - 9 = 20x - 16$$

$-18x$ $-18x$

$$-9 = 2x - 16$$

$+16$ $+16$

$$7 = 2x$$

$\div 2$ $\div 2$

$$3.5 = x$$

$$\therefore x = \underline{3.5}$$

(3 marks)

(/ 24 marks)