1 **(a)** Calculate.

$$\frac{\sqrt{3.2^2 + 4.7^2}}{9.7}$$

Give your answer correct to 2 decimal places.

(a) .... **[2]**

(b) Insert one pair of brackets so that this calculation is correct.

$$3 \times 6 + 5 - 1 = 32$$

[1]

2 **(a)** Simplify fully.

$$\frac{4xy}{6x}$$

(a) .... **[2]**

(b) Multiply out the brackets and simplify fully.

$$3(2x - 1) + 4(3x - 2)$$

(b) .... **[3]**

3   Insert brackets to make these calculations correct.

(a) $6 + 2 \times 4 = 32$ **[1]**

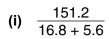**(b)** $6 + 2 \times 4 - 1 = 12$ **[1]**

(c) $6 + 2 \times 4^2 = 70$ **[1]**

4   **(a**   Calculate.

(i) $\dfrac{151.2}{16.8 + 5.6}$

(a)(i) _____ **[1]**

(ii) $(2.6 + 5.9)^3$

(ii) _____ **[1]**

(b)   Insert brackets to make this calculation correct.

$$2 \quad + \qquad\qquad\qquad$$ **[1]**

(c)   Vita calculated that, on average, students in her class took 3.85 minutes to complete a puzzle.

Write this average time in seconds.

(c) _____ s **[2]**

5   **(a)** Calculate.

$$\sqrt{\frac{12.75}{9.6 \times 0.54}}$$

Give your answer correct to 2 decimal places.

(a) .... **[2]**

(b) Insert **one pair** of brackets to make this calculation correct.

$$12 - 1 + 4 \times 3 = {}^{-}3$$

[1]

6 **(a** Calculate.

$$\frac{936}{5.2 - 1.95}$$

(a) _____ **[1]**

(b) Insert brackets to make this calculation correct.

$9 + 3 \times 7 - 5 = 24$ **[1]**

(c) Find the highest common factor (HCF) of 216 and 360.

(c) _____ **[3]**

7 **(a)** Calculate.

(i) $\sqrt{28.09^3}$

(a)(i) .... **[1]**

(ii) $\dfrac{3.6 + 9.42}{2.4}$

Give your answer correct to 1 decimal place.

(ii) .... **[2]**

(b) Calculate the reciprocal of 2.5.

(b) .... **[1]**

(c) Insert brackets to make these calculations correct.

$7 \times 2 + 6^2 = 400$

$6 + 4 \times 2 - 5 = 15$ **[2]**

8 Simon is asked to solve an equation.

Here is his solution.

$$2(3x - 1) = 7$$
$$6x - 2 = 14$$
$$6x = 14 - 2$$
$$6x = 12$$
$$x = \frac{1}{2}$$

Simon has made **three** errors.

(a) Explain the errors that he has made.

1 ....

....

2 ....

....

3 ....

.... **[3]**

(b) Show by substitution that $x = \frac{1}{2}$ is **not** the solution to the equation $2(3x - 1) = 7$.

....

.... **[1]**

9 **(a** Calculate.

$$\frac{4.6 + 9.37}{750.81}$$

Give your answer correct to 3 decimal places.

(a) _____ **[2]**

(b) Insert brackets to make each of these statements correct.

$$2 \times 2 + 6 \times 4 = 64$$

$$2 \times 2 + 6 \times 4 = 40$$

[2]

10 (a Calculate.

$$\frac{(3.6 + 13.2)^2}{4.1^2 - 2.9^2}$$

(a) _____ **[2]**

(b) Insert brackets so that this calculation is correct.

$$4 + 5 \times 6^{\,2} = 904$$

[1]

(c) (i) Express 120 as a product of its prime factors.

(c)(i) _____ **[2]**

(ii) Find the least common multiple (LCM) of 120 and 42.

(ii) _____ **[3]**