Mark

_____

40

Subject: Mathematics

Name: Answers

Date:

Second Exam / Second Semester

Grade-Section: 8 CS ( )

Duration: 1 hour

READ THESE INSTRUCTIONS FIRST.

Write candidate name, class and section in the spaces provided above.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, and glue or correction fluid.

Number of pages: 6

Answer all questions. Number of questions: 6

The number of marks is given at the beginning of each question or part question.

QUESTION NUMBER	MARK SCHEME
1	5
2	3
3	8
4	15
5	4
6	5
TOTAL	40

Question 1   **5 marks**

Find an expression for the perimeter of the following shape.

Simplify your expression!

$$x + 3 - 2 = x + 1$$

$$x + 7 - x = 7$$

$$P = x + 3 + x + x + 1 + 7 + 2 + x + 7$$

$$P = 4x + 20$$

$$\boxed{4x + 20}$$

Diagram labels: $x + 3$, x, $x + 7$, $? \; x + 1$, $? \; 7$, 2
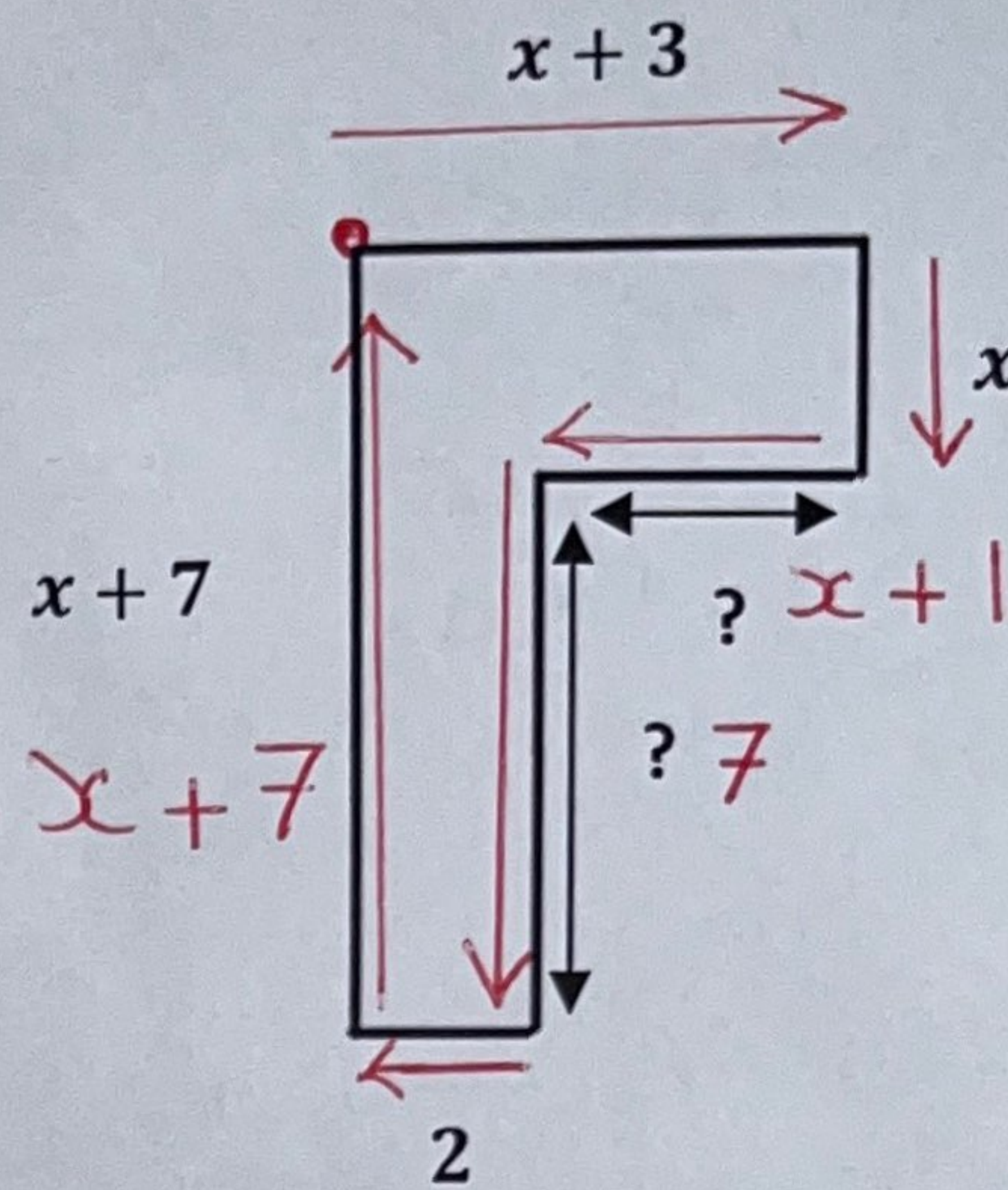
Question 2   **3 marks**

A rectangle has width, w. The length of the rectangle is 12 less than
double the width. Find an expression for the area of the rectangle.
Simplify your expression!

$$A = L \times W$$

$$A = (2W - 12) \times W$$

$$A = 2W^2 - 12W$$

$$\boxed{2W^2 - 12W}$$

Question 3   8 marks

Make x the subject of these formulae. Show your work.

a) $y = 10 - x$

$$y + x = 10$$

$$x = 10 - y$$

b) $y = \dfrac{x+w}{9}$

$$9y = x + w$$

$$x = 9y - w$$

c) $y = \dfrac{3x}{7} - 1$

$$\frac{7}{3}(y + 1) = \frac{3x}{7} \times \frac{7}{3}$$

$$x = \frac{7(y+1)}{3}$$

d) $y = x^2 r$

$$\frac{y}{r} = \frac{x^2 r}{r}$$

$$\sqrt{\frac{y}{r}} = \sqrt{x^2}$$

$$x = \sqrt{\frac{y}{r}}$$

Question 4   **15 marks**

Solve the following equations. Show your work.

- $18x - 4 = 12x + 8$

  $18x - 12x = 8 + 4$

  $\dfrac{6x}{6} = \dfrac{12}{6}$

  $x = 2$

- $10(y - 5) = 100$

  $\dfrac{10(y - 5)}{10} = \dfrac{100}{10}$

  $y - 5 = 10$

  $y = 10 + 5$

  $y = 15$

- $\dfrac{x}{7} - 3 = -1$

  $\dfrac{x}{7} = -1 + 3$

  $\dfrac{x}{7} = 2$

  $x = 2 \times 7$

  $x = 14$

- $\dfrac{6}{y-5} = \dfrac{2}{5}$

  $2(y - 5) = 5 \times 6$

  $\dfrac{2(y - 5)}{2} = \dfrac{30}{2}$

  $y - 5 = 15$

  $y = 15 + 5 \longrightarrow y = 20$

- $21 + 3(5x - 1) = 9x$

  $21 + 15x - 3 = 9x$

  $15x + 18 = 9x$

  $15x - 9x = -18$

  $\dfrac{6x}{6} = \dfrac{-18}{6}$

  $x = -3$

Question 5   **4 marks**

Omar thinks of a number, n. He adds 5 then multiplies the result

by 2. The answer is the same as 5 times the number take away 14.

   a) Write an equation to show this information.

$$2(5+n) = 5n - 14$$

   b) Solve your equation to find what number is Omar
      thinking of?

$$2(5+n) = 5n - 14$$
$$10 + 2n = 5n - 14$$
$$10 + 14 = 5n - 2n$$
$$\frac{24}{3} = \frac{3n}{3}$$

Question 6 $n = 8$ **5 marks**

The sum of three consecutive odd numbers is 99.

Let x be the first number.

   a) Write an equation to show this information.

$$x + x + 2 + x + 4 = 99$$
$$3x + 6 = 99$$

   b) Solve your equation.

$$3x + 6 = 99$$
$$3x = 99 - 6$$
$$\frac{3x}{3} = \frac{93}{3}$$
$$x = 31$$

   c) Find all of the numbers.

$$x = 31$$
$$x + 2 = 31 + 2 = 33$$
$$x + 4 = 31 + 4 = 35$$

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