



Subject: Mathematics

Second Exam Second Semester / Remedial Plan

Name: Answers

Grade-Section: 8 CS

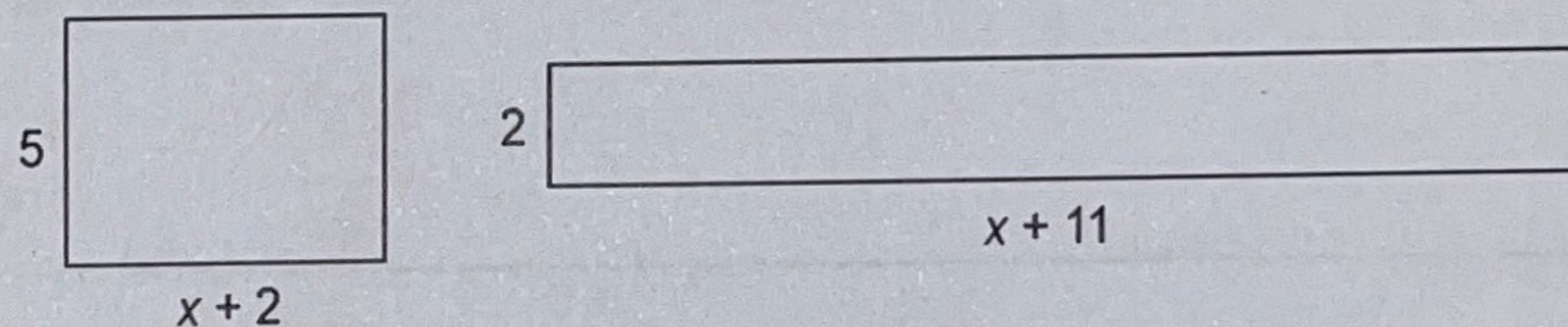
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Objective: Revise constructing expressions, changing the subject of a formula, constructing and solving linear equations, solving equations with the unknown in the denominator.

Question 1

These two rectangles have the same area. Find the value of x by constructing and solving an equation. Show your work.



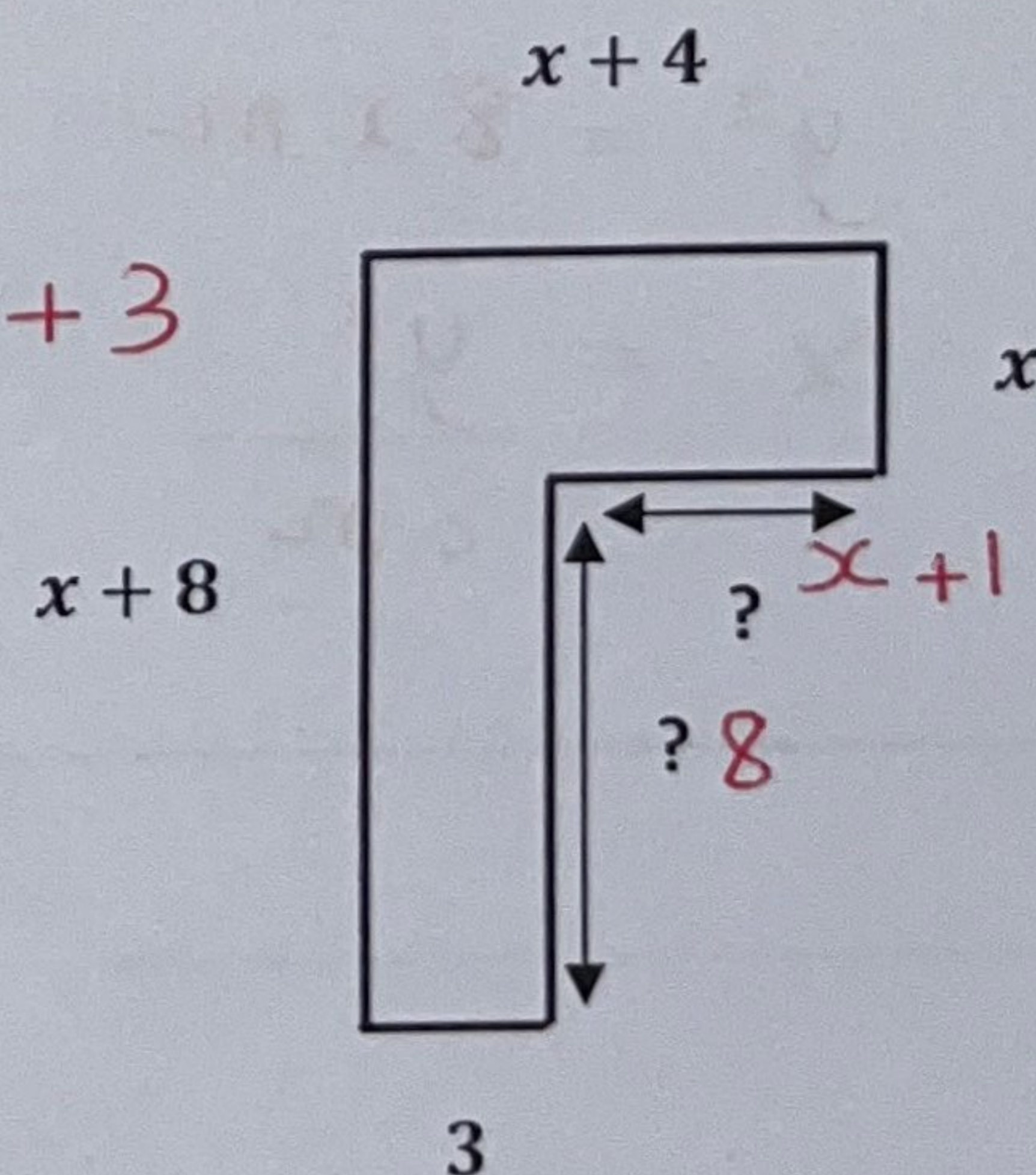
$$\begin{aligned}
 5(x+2) &= 2(x+11) \\
 5x + 10 &= 2x + 22 \\
 5x - 2x &= 22 - 10 \\
 \frac{3x}{3} &= \frac{12}{3} \rightarrow x = 4
 \end{aligned}$$

Question 2

Find an expression for the perimeter of the following shape.

Simplify your expression!

$$\begin{aligned}
 x + 8 + x + 4 + x + x + 1 + 8 + 3 \\
 4x + 24
 \end{aligned}$$



Question 3

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

a) $y = 7 - x$

$$x = 7 - y$$

b) $y = \frac{5x}{9} - 1$

$$y + 1 = \frac{5x}{9}$$

$$x = \frac{9(y+1)}{5}$$

c) $y = \frac{x+w}{4}$

$$4y = x + w$$

$$x = 4y - w$$

d) $y = \sqrt{8xm}$

$$y^2 = 8xm$$

$$x = \frac{y^2}{8m}$$

Question 4

Solve the following equations. Show your work.

- $\frac{x}{8} - 9 = -1$
 $\frac{x}{8} = 9 - 1$
 $\frac{x}{8} = 8$
 $x = 64$

- $20(y - 5) = 200$
 $y - 5 = \frac{200}{20}$
 $y - 5 = 10$
 $y = 15$

- $19x - 10 = 13x + 14$
 $19x - 13x = 14 + 10$
 $\frac{6x}{6} = \frac{24}{6}$
 $x = 4$

- $\frac{5}{y-5} = \frac{2}{3}$
 $2(y - 5) = 15$
 $2y - 10 = 15$
 $2y = 10 + 15 \rightarrow 2y = 25$
 $y = 12.5$

- $15 + 3(5x - 1) = 9x$
 $15 + 15x - 3 = 9x$
 $15x - 9x = -12$
 $\frac{6x}{6} = \frac{-12}{6}$
 $x = -2$

Question 5

Laith thinks of a number, n . He subtracts 1 then divides the result by 3. The answer is the same as 2 times the number take away 2.

a) Write an equation to show this information.

$$\frac{(n-1)}{3} = 2n - 2$$
$$n - 1 = 3(2n - 2)$$

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

$$n - 1 = 3(2n - 2)$$
$$n - 1 = 6n - 6$$
$$6 - 1 = 6n - n$$
$$\frac{5n}{5} = \frac{5}{5} \rightarrow n = 1$$

Question 6

The sum of three consecutive even numbers is 84.

Let x be the first number.

a) Write an equation to show this information.

$$x + x + 2 + x + 4 = 84$$
$$3x + 6 = 84$$

b) Solve your equation.

$$3x = 84 - 6$$
$$3x = 78$$
$$\frac{3x}{3} = \frac{78}{3}$$
$$x = 26$$

c) Find all of the numbers.

$$x = 26$$
$$x + 2 = 26 + 2 = 28$$
$$x + 4 = 26 + 4 = 30$$

Thank you!