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SUBJECT: MATHEMATICS CLASS 9th
Chapter – 1 TOPIC: NUMBER SYSTEM

Work sheet - 1

Q 1. Locate $\sqrt{2}$ on the number line.

Q.'2 Express 0.3333…….. in $\frac{p}{q}$ form s where p and q are integer and q ≠0

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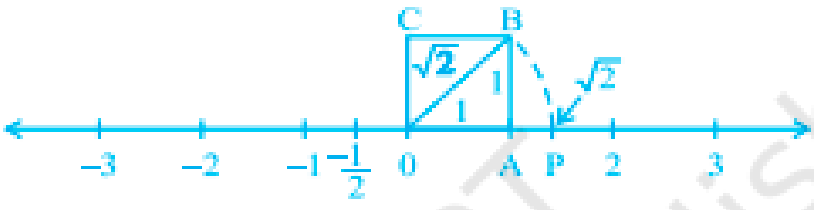
Q. 3 Simplify each of the following by rationalising the denominator.

(a) $\frac{6-4\sqrt{2}}{6+4\sqrt{2}}$ (b) $\frac{\sqrt{5}-2}{\sqrt{5}+2} - \frac{\sqrt{5}+2}{\sqrt{5}-2}$

Q.4 If a = 2 + $\sqrt{3}$, find the value of a - $\frac{1}{a}$

Answers

Answer 1



Answer 2

Since we do not know what $0.\overline{3}$ is , let us call it 'x' and so

$x = 0.3333...$

Now here is where the trick comes in. Look at

$10x = 10 \times (0.333...) = 3.333...$

Now, $3.3333... = 3 + x$, since $x = 0.3333...$

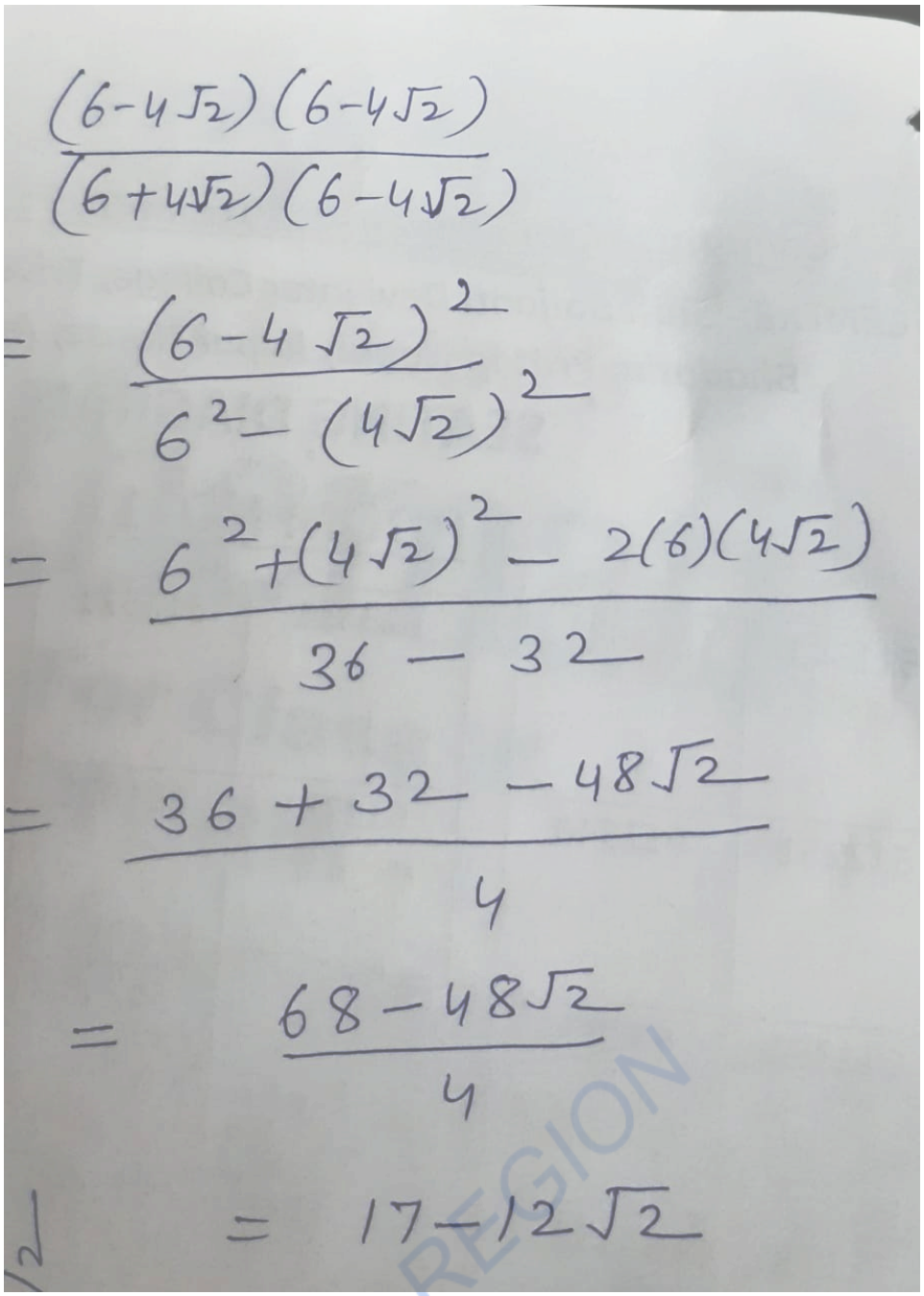
Therefore, $10x = 3 + x$

Solving for x, we get

$9x = 3$, i.e., $x = \frac{1}{3}$

Answer 3

(a)



$$\frac{(6-4\sqrt{2})(6-4\sqrt{2})}{(6+4\sqrt{2})(6-4\sqrt{2})}$$

$$= \frac{(6-4\sqrt{2})^2}{6^2-(4\sqrt{2})^2}$$

$$= \frac{6^2+(4\sqrt{2})^2-2(6)(4\sqrt{2})}{36-32}$$

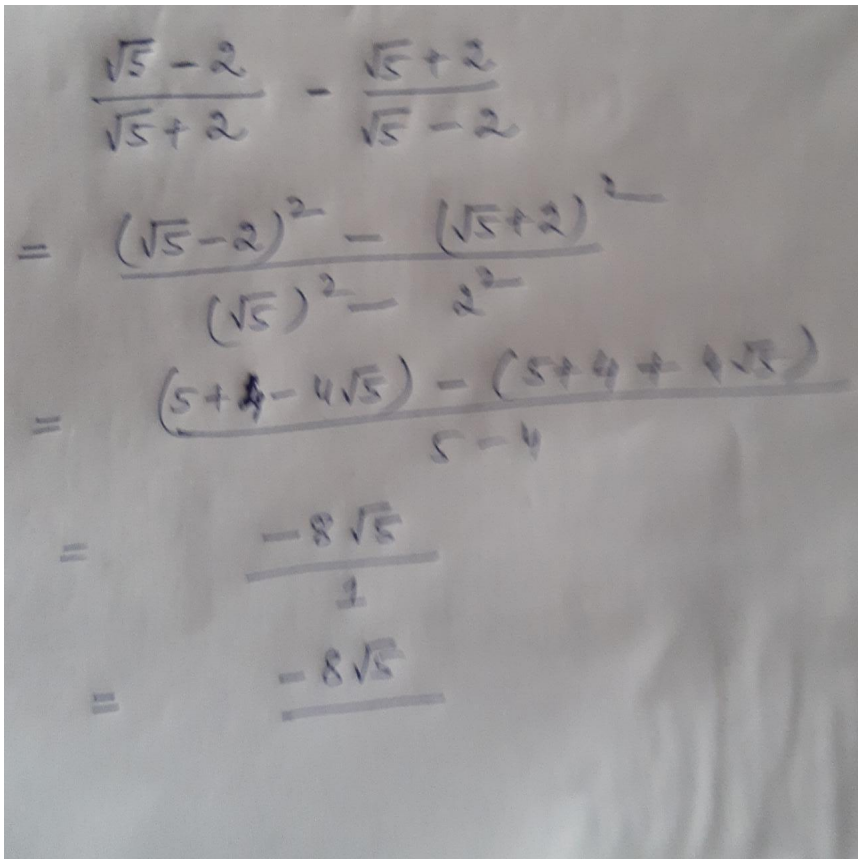
$$= \frac{36+32-48\sqrt{2}}{4}$$

$$= \frac{68-48\sqrt{2}}{4}$$

$$= 17-12\sqrt{2}$$

½

(b)



$$\frac{\sqrt{5}-2}{\sqrt{5}+2} - \frac{\sqrt{5}+2}{\sqrt{5}-2}$$

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

$$= \frac{(5+4-4\sqrt{5}) - (5+4+4\sqrt{5})}{5-4}$$

$$= \frac{-8\sqrt{5}}{1}$$

$$= -8\sqrt{5}$$

Answer 4