

Before we begin, are there any questions from last day's work?

READ p. 307 Example 2 Width of a Path

pp. 313-314 #18, 19, 21, 22

Enrichment: pp. 452-453 #22, 30

Today's Learning Goal(s):

By the end of the class, I will be able to:

- consolidate understanding of quadratic relations and equations and be prepared for the Unit 6 Summative.

Today's entertainment:

Remember: to find the roots means to solve for the x -intercepts.

To solve for the x -intercepts, ALWAYS try to factor the equation first, before trying the Quadratic Formula.

pp. 318-319 #1b, 2, 4bd, 5abd, 6acfg, 8, 9a, 13, 16*no rounding, 17

p. 317 #13

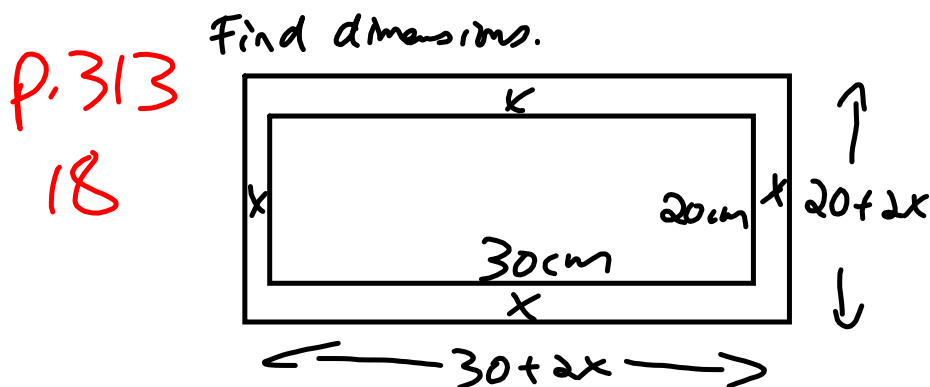
Today's entertainment:

Remember: to find the roots means to solve for the x -intercepts.

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pp. 318-319 #1b, 2, 4bd, 5abd, 6acfg, 8, 9a, 13, 16*no rounding, 17

p. 317 #13



$$A_{\text{new}} = (30 + 2x)(20 + 2x) \quad A_{\text{new}} = 1064$$

Let $30 + 2x$ represent the new length in cm.

Let $20 + 2x$ represent the new width in cm.

$$(30 + 2x)(20 + 2x) = 1064$$

$$600 + 60x + 40x + 4x^2 = 1064$$

$$4x^2 + 100x - 464 = 0 \quad \begin{array}{l} 1 \quad 116 \\ 2 \quad 58 \\ 3 \quad 29 \end{array}$$

$$4(x^2 + 25x - 116) = 0$$

$$4(x + 29)(x - 4) = 0 \quad \begin{array}{l} 3 \quad 29 \\ -4 \quad 29 \end{array}$$

$$\therefore x = -29 \text{ or } x = 4$$

$$\therefore l = 30 + 2x \quad w = 20 + 2x$$

$$= 30 + 2(4) \quad = 20 + 2(4)$$

$$= 38 \quad = 28$$

\therefore the new dimensions are 38 cm by 28 cm.

or using the formula:

$$a = 1 \quad b = 25 \quad c = -116$$

$$x = \frac{-25 \pm \sqrt{(25)^2 - 4(1)(-116)}}{2(1)}$$

$$= \frac{-25 \pm \sqrt{1089}}{2}$$

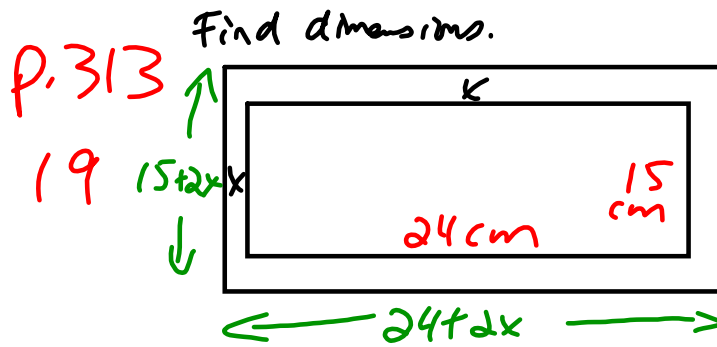
$$= \frac{-25 \pm 33}{2}$$

$$x = \frac{-25 + 33}{2}$$

$$= \frac{8}{2}$$
$$= 4$$

$$x = \frac{-25 - 33}{2}$$

$$= -29$$



$$A_{\text{original}} = 24 \times 15 \\ = 360 \text{ cm}^2$$

$$A_{\text{new}} = 1.5 \times 360 \\ = 540 \text{ cm}^2$$

$$A_{\text{new}} = (24+2x)(15+2x)$$

Let $24+2x$ represent the new length in cm.

Let $15+2x$ represent the new width in cm.

$$(24+2x)(15+2x) = 540$$

$$360 + 48x + 30x + 4x^2 - 540 = 0$$

$$4x^2 + 78x - 180 = 0$$

$$2(2x^2 + 39x - 90) = 0$$

$$a=2 \quad b=39 \quad c=-90$$

$$x = \frac{-39 \pm \sqrt{(39)^2 - 4(2)(-90)}}{2(2)}$$

$$= \frac{-39 \pm \sqrt{2241}}{4}$$

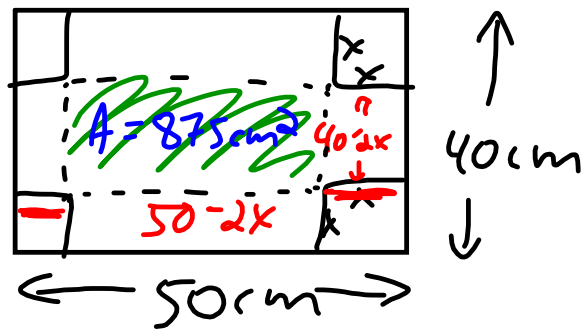
$$x = 2.08 \quad \text{or} \quad x = -21.58$$

$$\approx 2.1 \quad \Rightarrow \text{inadmissible}$$

$$l = 24 + 2(2.1) \quad w = 15 + 2(2.1) \\ = 28.2 \quad = 19.2$$

\therefore the new dimensions are 28.2 cm by 19.2 cm.

p.314
21



Let x represent the length of the square in cm.

$$(50 - 2x)(40 - 2x) = 875$$

$$2000 - 100x - 80x + 4x^2 = 875$$

$$4x^2 - 180x + 1125 = 0$$

$$a = 4 \quad b = -180 \quad c = 1125$$

$$x = \frac{-(-180) \pm \sqrt{(-180)^2 - 4(4)(1125)}}{2(4)}$$

$$= \frac{180 \pm \sqrt{14400}}{8}$$

$$= \frac{180 \pm 120}{8}$$

$$x = \frac{300}{8}$$

$$= 37.5$$

$$x = \frac{60}{8}$$

$$= 7.5$$

$$l = 50 - 2(7.5) \quad w = 40 - 2(7.5)$$

$$= 35$$

$$= 25$$

$$\text{if } l = 50 - 2x$$

$$= 50 - 2(37.5)$$

inadmissible

$$\text{c) } V = lwh$$

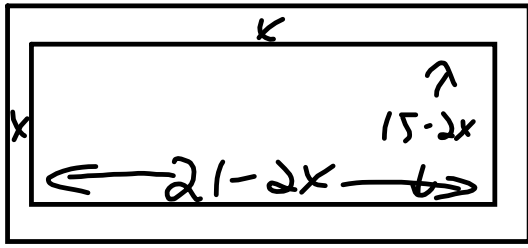
$$= (35)(25)(7.5)$$

$$= 6562.5 \text{ cm}^3$$

5) 7.5 cm must be removed from each corner.

p. 314 Find dimensions.

22



Original =
15 cm
New = 216 cm²
=

21 cm

Let x represent the width of the cut in cm.

$$A_{\text{new}} = (21 - 2x)(15 - 2x)$$

$$(21 - 2x)(15 - 2x) = 216$$

$$315 - 42x - 30x + 4x^2 - 216 = 0$$

$$4x^2 - 72x + 99 = 0$$

$$(2x - 3)(2x - 33) = 0$$

$$2x - 3 = 0$$

$$2x = 3$$

$$x = \frac{3}{2}$$

$$= 1.5$$

$$2x = 33$$

$$x = \frac{33}{2}$$

$$= 16.5$$

$$\begin{array}{r} 2 \quad -33 \\ 2 \quad -3 \\ \hline -66 -6 \\ = -72 \end{array}$$

$$\left. \begin{array}{l} l \\ = 21 - 2x \\ = 21 - 2(16.5) \\ = 21 - 33 \\ = -12 \end{array} \right\}$$

\therefore We need to cut 1.5 cm of each side of the photograph.

check?
 $\left. \begin{array}{l} 21 - 3 \quad | \quad 15 - 3 \\ = 18 \quad | \quad = 12 \end{array} \right\}$

Attachments

PopGoestheWeasel.mid