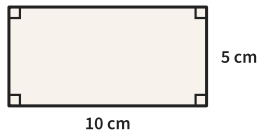


Percentages and area

1

The length and width of this rectangle are both increased by 20%. Find the percentage increase in its area.



New lengths **12** and **6** cm

New area **72** cm²

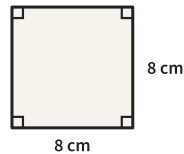
Change **22** ÷ 50 = **44%**

44% increase

Answer _____

2

Each side of this square is increased by 10%. Find the percentage increase in its area.



New lengths **8.8** and **8.8** cm

New area **77.44** cm²

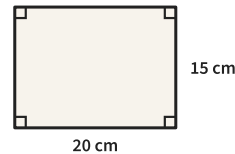
Change **13.44** ÷ 64 = **21%**

21% increase

Answer _____

3

The length and width of this rectangle are both decreased by 10%. Find the percentage decrease in its area.



New lengths **18** and **13.5** cm

New area **243** cm²

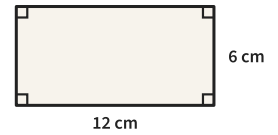
Change **57** ÷ 300 = **19%**

19% decrease

Answer _____

4

The length of this rectangle is increased by 25% and its width is decreased by 20%. Find the percentage change in its area.



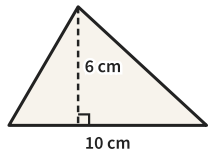
Change **0** ÷ 72 = **0%**

no change

Answer _____

5

The base and height of this triangle are both increased by 50%. Find the percentage increase in its area.



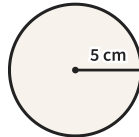
15 × 9 ÷ 2 = 67.5, was 30

125% increase

Answer _____

6

The radius of this circle is increased by 20%. Find the percentage increase in its area.



π × 6² ÷ (π × 5²) = 1.44

44% increase

Answer _____

7

Each side of a square is increased by 30%. Its area is now 169 cm². Find the length of a side of the original square.

new side √ 169 = 13, 13 ÷ 1.3

10 cm

Answer _____

8

A photo 15 cm by 10 cm is enlarged. Its area goes up by 69%. By what percentage does each side go up?

area × 1.69, so each side × √ 1.69 = 1.3

30%

Answer _____

Percentages and area *further practice*

9

A rectangle is 25 cm long and 8 cm wide. Its length is increased by 12%. Find its new area.

28 × 8

224 cm²

Answer _____

10

Each side of a square of side 6 cm is decreased by 25%. Find the percentage decrease in its area.

4.5² = 20.25, was 36

43.75% decrease

Answer _____

11

A field is 120 m long and 80 m wide. Its length is decreased by 15% and its width is increased by 15%. Find the percentage change in its area.

102 × 92 = 9384, was 9600

2.25% decrease

Answer _____

12

Carpet costs £18 per m². A rug 2 m by 3 m is made 10% longer and 10% wider. How much more does the bigger rug cost?

2.2 × 3.3 = 7.26 m², an extra 1.26 m²

£22.68

Answer _____

13

The length and width of a rectangle are both increased by $x\%$. Its area goes up by 21%. Find x .

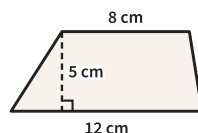
√ 1.21 = 1.1

$x = 10$

Answer _____

14

Every length of this trapezium is decreased by 20%. Find its new area and the percentage decrease.



(6.4 + 9.6) ÷ 2 × 4

32 cm², 36% decrease

Answer _____

15

The length of a rectangle is increased by 20%. By what percentage must its width decrease so that its area stays the same? Give your answer to 1 decimal place.

width × 1 ÷ 1.2 = 0.833...

16.7%

Answer _____

16

Kim says that increasing each side of a square by 10% increases its area by 20%. Explain why she is wrong and find the right increase.

both sides are multiplied by 1.1, so the area is multiplied by 1.1 × 1.1 = 1.21

21% increase

Answer _____