# Divide powers

Maths

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# Divide powers

1. Simplify each expression.

a) $7^5 \div 7^2$

b) $9^5 \div 9^4$

c) $132^{19} \div 132^9$

d) $(-19)^9 \div (-19)$

2. Write each expression as a single power of 3

a) $\dfrac{3^9}{3^2}$

b) $\dfrac{3^9}{3^7}$

c) $\dfrac{3^{19}}{3}$

d) $\dfrac{3^{200}}{3^{99}}$

3. State whether each is true or false.

a) $2^2 \div 2^5 = 2^3$

b) $\dfrac{2^4}{2^8} = 2^{-2}$

c) $\dfrac{2^5}{2^8} = 2^{-3}$

d) $\dfrac{2^{-3}}{2^{-4}} = 2$

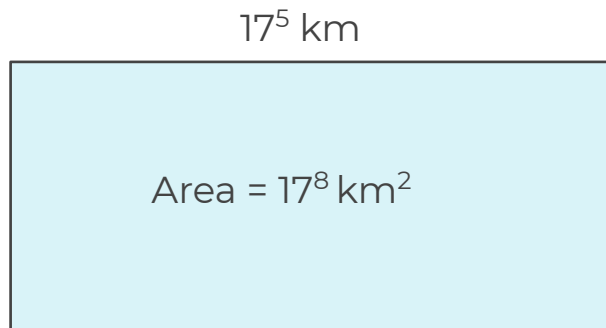For any false statements work out the correct answer.

# Divide powers

4. Write the following as single powers of 5

a) $\dfrac{5^7 \times 5^2}{5^3}$

b) $\dfrac{5^{19}}{5^7 \times 5^{11}}$

c) $\dfrac{5^{-3} \times 5^4}{5^6 \times 5^{-7}}$

5. A rectangle has an area of $17^8$ km$^2$ and a length of $17^5$ km. Calculate the width of the rectangle. Give your answer as a single power of 17

$17^5$ km

Area = $17^8$ km$^2$

# Answers

# Divide powers

1. Simplify each expression.

a) $7^5 \div 7^2$  $\qquad$ $7^3$

b) $9^5 \div 9^4$  $\qquad$ $9^1 = 9$

c) $132^{19} \div 132^9$  $\qquad$ $132^{10}$

d) $(-19)^9 \div (-19)$  $\qquad$ $(-19)^8$

2. Write each expression as a single power of 3

a) $\dfrac{3^9}{3^2}$  $\qquad$ $3^7$  $\qquad$ c) $\dfrac{3^{19}}{3}$  $\qquad$ $3^{18}$

b) $\dfrac{3^9}{3^7}$  $\qquad$ $3^2$  $\qquad$ d) $\dfrac{3^{200}}{3^{99}}$  $\qquad$ $3^{101}$

3. State whether each is true or false.

a) $2^2 \div 2^5 = 2^3$  $\qquad$ False. $2^{-3}$

b) $\dfrac{2^4}{2^8} = 2^{-2}$  $\qquad$ False. $2^{-4}$

c) $\dfrac{2^5}{2^8} = 2^{-3}$  $\qquad$ True

d) $\dfrac{2^{-3}}{2^{-4}} = 2$  $\qquad$ True

For any false statements work out the correct answer.

# Divide powers

4. Write the following as single powers of 5

a) $\dfrac{5^7 \times 5^2}{5^3}$     $5^6$

b) $\dfrac{5^{19}}{5^7 \times 5^{11}}$     $5^1 = 5$

c) $\dfrac{5^{-3} \times 5^4}{5^6 \times 5^{-7}}$     $5^2$

5. A rectangle has an area of $17^8$ km$^2$ and a length of $17^5$ km. Calculate the width of the rectangle. Give your answer as a single power of 17

$17^5$ km

Area = $17^8$ km$^2$     $17^3$ km