

Name:

Date: Score:

Powers and Exponents

1 Fill in the boxes

a $2^3 \times 2^8 \times 2^5 = 2^{\square}$

b $(4^2)^4 = 4^{\square}$

c $16^{-1} = \square^{\square}$

d $\frac{4^1 \times 4^3 \times 4^3}{4^2} = 4^{\square}$

2 Express in power notation

a $\frac{16}{81} =$

b $\frac{27}{625} =$

c $\frac{49}{121} =$

3 Find the value of: $a^2 - (b + 1)^4$, when

a $a = \frac{1}{2}, b = \frac{3}{4}$

b $a = \frac{1}{4}, b = -\frac{3}{4}$

4 Simplify

a $\left(\frac{1}{2}\right)^{-5} \times \left(\frac{1}{2}\right)^4 \times (3)^{-2}$

b $\left(\frac{2}{9}\right)^{-2} \times \left(\frac{9}{2}\right)^2$

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Answers

1

a $2^3 \times 2^8 \times 2^5 = 2^{16}$

b $(4^2)^4 = 4^8$

c $16^{-1} = 2^{-4}$

d $\frac{4^1 \times 4^3 \times 4^3}{4^2} = 4^5$

2

a $\frac{16}{81} = \left(\frac{2}{3}\right)^4$

b $\frac{27}{625} = \frac{3^3}{5^4}$

c $\frac{49}{121} = \left(\frac{7}{11}\right)^2$

3

a $a = \frac{1}{2}, b = \frac{3}{4}$

b $a = \frac{1}{4}, b = -\frac{3}{4}$

$-\frac{2337}{256}$

$\frac{15}{256}$

4

a $\left(\frac{1}{2}\right)^{-5} \times \left(\frac{1}{2}\right)^4 \times (3)^{-2}$

b $\left(\frac{2}{9}\right)^{-2} \times \left(\frac{9}{2}\right)^2$

$\frac{2}{9}$

$\frac{6561}{16}$