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Math worksheet on *'Exponents - Negative Fractional Exponents with Non-Square Integer Base - Exponent to Factored Exponent (Level 2)'*. Part of a broader unit on *'Exponents - Negative and Fractional Bases and Exponents'*

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app.mobius.academy/math/units/exponents_negative_and_fractional_bases_review/

1 Factor the base number and simplify to make it easier to solve

$250^{\left(\frac{-1}{3}\right)}$

a $\frac{1}{(2 \cdot 25 \cdot 5)^{\left(\frac{1}{3}\right)}}$ **b** $\frac{1}{(2 \cdot 5 \cdot 5 \cdot 5)^{\left(\frac{1}{3}\right)}}$

c $\frac{1}{(5 \cdot 5 \cdot 5)^{\left(\frac{1}{3}\right)}}$ **d** $\frac{1}{(2 \cdot 5 \cdot 5 \cdot 5 \cdot 5)^{\left(\frac{1}{3}\right)}}$

e $\frac{1}{(2 \cdot 5 \cdot 25)^{\left(\frac{1}{3}\right)}}$ **f** $\frac{1}{(2 \cdot 5 \cdot 5 \cdot 5 \cdot 7)^{\left(\frac{1}{3}\right)}}$

2 Factor the base number and simplify to make it easier to solve

$108^{\left(\frac{-1}{2}\right)}$

a $\frac{1}{(2 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **b** $\frac{1}{(2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 5)^{\left(\frac{1}{2}\right)}}$

c $\frac{1}{(2 \cdot 2 \cdot 9 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **d** $\frac{1}{(2 \cdot 2 \cdot 3 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$

e $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **f** $\frac{1}{(2 \cdot 3 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$

3 Factor the base number and simplify to make it easier to solve

$40^{\left(\frac{-1}{3}\right)}$

a $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 5)^{\left(\frac{1}{3}\right)}}$ **b** $\frac{1}{(2 \cdot 2 \cdot 5)^{\left(\frac{1}{3}\right)}}$

c $\frac{1}{(2 \cdot 2 \cdot 2)^{\left(\frac{1}{3}\right)}}$ **d** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 5 \cdot 5)^{\left(\frac{1}{3}\right)}}$

e $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 5)^{\left(\frac{1}{3}\right)}}$ **f** $\frac{1}{(2 \cdot 2 \cdot 10)^{\left(\frac{1}{3}\right)}}$

4 Factor the base number and simplify to make it easier to solve

$24^{\left(\frac{-1}{3}\right)}$

a $\frac{1}{(2 \cdot 2 \cdot 3)^{\left(\frac{1}{3}\right)}}$ **b** $\frac{1}{(2 \cdot 4 \cdot 3)^{\left(\frac{1}{3}\right)}}$

c $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{3}\right)}}$ **d** $\frac{1}{(2 \cdot 2 \cdot 6)^{\left(\frac{1}{3}\right)}}$

e $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3 \cdot 5)^{\left(\frac{1}{3}\right)}}$ **f** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{1}{3}\right)}}$

5 Factor the base number and simplify to make it easier to solve

$45^{\left(\frac{-1}{2}\right)}$

a $\frac{1}{(3 \cdot 3 \cdot 5)^{\left(\frac{1}{2}\right)}}$ **b** $\frac{1}{(3 \cdot 3 \cdot 5 \cdot 11)^{\left(\frac{1}{2}\right)}}$

c $\frac{1}{(2 \cdot 3 \cdot 3 \cdot 5)^{\left(\frac{1}{2}\right)}}$ **d** $\frac{1}{(3 \cdot 3 \cdot 5 \cdot 5)^{\left(\frac{1}{2}\right)}}$

e $\frac{1}{(3 \cdot 3 \cdot 3 \cdot 5)^{\left(\frac{1}{2}\right)}}$ **f** $\frac{1}{(3 \cdot 3 \cdot 5 \cdot 7)^{\left(\frac{1}{2}\right)}}$

6 Factor the base number and simplify to make it easier to solve

$48^{\left(\frac{-1}{2}\right)}$

a $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 7)^{\left(\frac{1}{2}\right)}}$ **b** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 6)^{\left(\frac{1}{2}\right)}}$

c $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **d** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{2}\right)}}$

e $\frac{1}{(2 \cdot 2 \cdot 4 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **f** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3)^{\left(\frac{1}{2}\right)}}$

7 Factor the base number and simplify to make it easier to solve

$144^{\left(\frac{-1}{2}\right)}$

a $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **b** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5)^{\left(\frac{1}{2}\right)}}$

c $\frac{1}{(2 \cdot 4 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **d** $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$

e $\frac{1}{(2 \cdot 2 \cdot 2 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$ **f** $\frac{1}{(2 \cdot 2 \cdot 4 \cdot 3 \cdot 3)^{\left(\frac{1}{2}\right)}}$