Simplify $\frac{5}{8}x^{\frac{3}{2}} \div \frac{1}{2}x^{-\frac{5}{2}}$.

Answer ..... [2]

Write $2^8 \times 8^2 \times 4^{-2}$ in the form 2^n.

Answer ..... [2]

$3^x \times 9^4 = 3^n$.

Find n in terms of x.

Answer $n =$ ..... [2]

Simplify

(a) $\left(\frac{p^4}{16}\right)^{0.75}$,

Answer(a) ..... [2]

(b) $3^2q^{-3} \div 2^3q^{-2}$.

Answer(b) ..... [2]

Use a calculator to work out the **exact** value of

$$1+\frac{1}{5}+\left(\frac{1}{5}\right)^2+\left(\frac{1}{5}\right)^3+\left(\frac{1}{5}\right)^4.$$

Answer ..... [2]

$a \times 10^7 + b \times 10^6 = c \times 10^6$

Find c in terms of a and b.
Give your answer in its simplest form.

Answer $c =$ ..... [2]

Find the value of n in the following equations.

(a) $2^n = 1024$

Answer(a) $n =$ ..... [1]

(b) $4^{2n-3} = 16$

Answer(b) $n =$ ..... [2]

Simplify

(a) $\left(\frac{16}{81}x^{16}\right)^{\frac{1}{2}}$,

Answer(a) ..... [2]

(b) $\frac{16y^{10}\times 4y^{-4}}{32y^{7}}$.

Answer(b) ..... [2]

Solve the following logarithmic equation

$$2\log_{10} x+\log_{10} 3=\log_{10} 75.$$