BINOMIAL APPROXIMATIONS

STARTER NO CALCULATOR 18/3/16

HENCE FIND THE APPROXIMATE VALUE OF

1. $\sqrt{\frac{13}{9}} \approx 1.202$ $\sqrt{13} \approx$

2. $\sqrt{\frac{17}{16}} \approx 1.031$ $\sqrt{17} \approx$

3. $\sqrt{\frac{27}{25}} \approx 1.039$ $\sqrt{27} \approx$

4. $\sqrt[3]{\frac{31}{27}} \approx 1.047$ $\sqrt[3]{31} \approx$

5. $\sqrt[3]{\frac{78}{64}} \approx 1.068$ $\sqrt[3]{78} \approx$

6. $\sqrt{1.08} \approx 1.039$ $\sqrt{108} \approx$

7. $\sqrt[3]{0.999} \approx 0.9997$ $\sqrt[3]{999} \approx$

* 8. $\sqrt[3]{1.04} \approx 1.013$ $\sqrt[3]{130} \approx$

ANSWERS

STARTER NO CALCULATOR

HENCE FIND THE APPROXIMATE VALUE OF

1. $\sqrt{\frac{13}{9}} \approx 1.202$ $\quad \sqrt{13} \approx 1.202 \times \sqrt{9}$

1.202×3

3.606

2. $\sqrt{\frac{17}{16}} \approx 1.031$ $\quad \sqrt{17} \approx 1.031 \times \sqrt{16}$

4.124

3. $\sqrt{\frac{27}{25}} \approx 1.039$ $\quad \sqrt{27} \approx 1.039 \times 5$

5.195

4. $\sqrt[3]{\frac{31}{27}} \approx 1.047$ $\quad \sqrt[3]{31} \approx 3.141$

5. $\sqrt[3]{\frac{78}{64}} \approx 1.068$ $\quad \sqrt[3]{78} \approx 1.068 \times 4$

$4.272.$

6. $\sqrt{1.08} \approx 1.039$ $\quad \sqrt{108} \approx \sqrt{100 \times \frac{108}{100}}$

$10 \times \sqrt{1.08}$

10.39

7. $\sqrt[3]{0.999} \approx 0.9997$ $\quad \sqrt[3]{999} \approx \sqrt[3]{1000 \times \frac{999}{1000}}$

$= 10 \times \sqrt[3]{0.999} = 9.997$

8. $\sqrt[3]{1.04} \approx 1.013$ $\quad \sqrt[3]{130} \approx \sqrt[3]{125 \times 1.04}$

$5 \times \sqrt[3]{1.04}$

$1.04 \times x = 130$ $\quad 5 \times 1.013$

$x = 125$ $\quad 5.065.$