REFERENCE FUNCTIONS

A SQUARE FUNCTION

A.1 FINDING IMAGES AND ANTECEDENTS

Ex 1: For $f(x) = x^2$, fill the table of values:

x	-2	-1	0	1	2
$f(x)$					

Ex 2: For $f(x) = x^2$,

$$f(\sqrt{2}) = \square$$

Ex 3: For $f(x) = x^2$,

$$f(3\sqrt{2}) = \square$$

MCQ 4: If $x = -3$, then $x^2 = -9$.

☐ True

☐ False

A.2 FINDING x SUCH THAT $f(x) = k$

Ex 5: For $f(x) = x^2$, find x such that $f(x) = 4$.

Ex 6: For $f(x) = x^2$, find x such that $f(x) = 1$.

Ex 7: For $f(x) = x^2$, find x such that $f(x) = 0$.

Ex 8: For $f(x) = x^2$, find x such that $f(x) = -1$.

MCQ 9: If $x^2 = 9$, then $x = 3$.

☐ True

☐ False

A.3 COMPARING

Ex 10: Compare 2.2^2 and 2.4^2.

Ex 11: Compare $(-1000)^2$ and $(-999)^2$.

Ex 12: Compare $(-10)^2$ and 10^2.

Ex 13: Compare $(200)^2$ and $(100)^2$.

Ex 14: Compare $(-14.5)^2$ and $(-14)^2$.

MCQ 15: Without using a calculator, order the following numbers in ascending order: $\left(\frac{1}{7}\right)^2, (-5)^2, \pi^2, (-1)^2$.

☐ $\left(\frac{1}{7}\right)^2 < (-5)^2 < \pi^2 < (-1)^2$

☐ $\left(\frac{1}{7}\right)^2 < (-1)^2 < \pi^2 < (-5)^2$

☐ $(-1)^2 < \left(\frac{1}{7}\right)^2 < \pi^2 < (-5)^2$

☐ $(-5)^2 < (-1)^2 < \left(\frac{1}{7}\right)^2 < \pi^2$

A.4 DETERMINING AN INTERVAL

Ex 16: Let $3 < x$. Determine an interval for x^2

Ex 17: Let $x < -2$. Determine an interval for x^2

Ex 18: Let $2 < x \leqslant 5$. Determine an interval for x^2

Ex 19: Let $-\sqrt{2} \leqslant x \leqslant 0$. Determine an interval for x^2

B SQUARE ROOT FUNCTION

B.1 FINDING IMAGES AND ANTECEDENTS

Ex 20: For $f(x) = \sqrt{x}$, fill the table of values:

x	0	1	4
$f(x)$			

Ex 21: For $f(x) = \sqrt{x}$,

$$f(25) = \square$$

Ex 22: For $f(x) = \sqrt{x}$,

$$f(100) = \square$$

Ex 23: Let $f(x) = \sqrt{x}$. Find $f(-1)$.

B.2 FINDING x SUCH THAT $f(x) = k$

Ex 24: For $f(x) = \sqrt{x}$, find x such that $f(x) = 2$.

Ex 25: For $f(x) = \sqrt{x}$, find x such that $f(x) = 2\sqrt{3}$.

Ex 26: For $f(x) = \sqrt{x}$, find x such that $f(x) = \dfrac{\sqrt{2}}{2}$.

Ex 27: For $f(x) = \sqrt{x}$, find x such that $f(x) = -1$.

B.3 COMPARING

Ex 28: Compare $\sqrt{2}$ and $\sqrt{3}$.

Ex 29: Compare $\sqrt{100}$ and $\sqrt{99}$.

Ex 30: Compare $\sqrt{\pi}$ and $\sqrt{3}$.

C CUBE FUNCTION

C.1 FINDING IMAGES AND ANTECEDENTS

Ex 31: For $f(x) = x^3$, fill the table of values:

x	-2	-1	0	1	2
$f(x)$					

Ex 32: For $f(x) = x^3$,

$$f(10) = \square$$

Ex 33: For $f(x) = x^3$,

$$f(-5) = \square$$

Ex 34: For $f(x) = x^3$,

$$f(-3) = \square$$

D INVERSE FUNCTION

D.1 FINDING IMAGES AND ANTECEDENTS

Ex 35: For $f(x) = \frac{1}{x}$, fill the table of values:

x	-2	-1	-0.5	0.5	1
$f(x)$					

Ex 36: For $f(x) = \frac{1}{x}$,

$$f\left(\frac{1}{2}\right) = \square$$

D.2 FINDING x SUCH THAT $f(x) = k$

Ex 37: For $f(x) = \dfrac{1}{x}$, find x such that $f(x) = 4$.

Ex 38: For $f(x) = \dfrac{1}{x}$, find x such that $f(x) = -2$.

Ex 39: For $f(x) = \dfrac{1}{x}$, find x such that $f(x) = \dfrac{2}{3}$.

Ex 40: For $f(x) = \dfrac{1}{x}$, find x such that $f(x) = -\dfrac{5}{2}$.

D.3 COMPARING

Ex 41: Compare $\dfrac{1}{20}$ and $\dfrac{1}{100}$.

Ex 42: Compare $\dfrac{1}{\sqrt{2}}$ and $\dfrac{1}{2}$.

Ex 43: Compare $-\dfrac{1}{20}$ and $-\dfrac{1}{19}$.

Ex 44: Compare $\dfrac{1}{\sqrt{2}}$ and $\dfrac{1}{\sqrt{3}}$.