Sᴀᴍᴘʟᴇ Pᴀᴘᴇʀ 4: Pᴀᴘᴇʀ 1

Qᴜᴇsᴛɪᴏɴ 5 (25 ᴍᴀʀᴋs)

Question 5 (a)

This is a bijective function as there is a perfect one to one correspondence between the *x* and *y* values. A bijective function means it is both an injective and surjective function.

INJECTIVE FUNCTION ✓

SURJECTIVE FUNCTION ✓

BIJECTIVE FUNCTION ✓
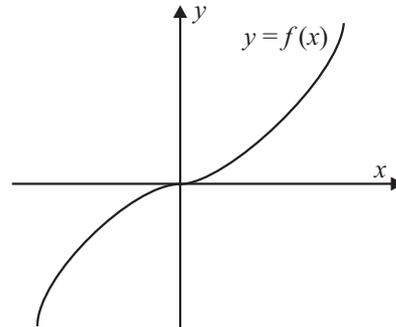
Question 5 (b)

This is a surjective function which means that every *y* value has at least one matching *x* value. It is not injective as many *y* values have more than one corresponding *x* value.

INJECTIVE FUNCTION ✗

SURJECTIVE FUNCTION ✓

BIJECTIVE FUNCTION ✗
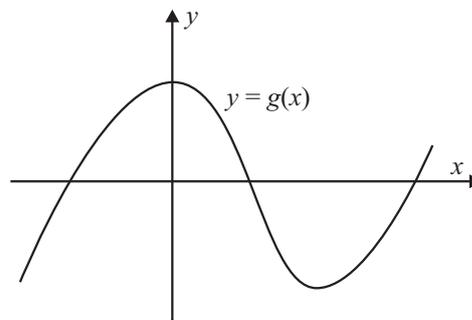
Question 5 (c)

This is an injective function which means that every *y* value has its own unique matching *x* value.

INJECTIVE FUNCTION ✓

SURJECTIVE FUNCTION ✗

BIJECTIVE FUNCTION ✗

Domain = {0, 1, 2, 3, 4, 5,....}
Range = {0, 1, 4, 9, 16,.......}
Every element in the domain matches to a unique element in the codomain. There are elements in the codomain that do not have a matching element from the domain.

Question 5 (d)

This is a bijective function as there is a perfect one to one correspondence between the *x* and *y* values. A bijective function means it is both an injective and surjective function.

INJECTIVE FUNCTION ✓

SURJECTIVE FUNCTION ✓

BIJECTIVE FUNCTION ✓

Domain = {Positive real numbers}
Range = {Positive real numbers}
Every element in the domain matches to a unique element in the codomain. Every element in the codomain has a unique matching element from the domain.

Question 5 (e)

This is a surjective function which means that every y value has at least one matching x value.
It is not injective as many y values have more than one correspoding x value.

Iɴᴊᴇᴄᴛɪᴠᴇ Fᴜɴᴄᴛɪᴏɴ	✘	Domain = {All real numbers}
		Range = {Positive real numbers}
Sᴜʀᴊᴇᴄᴛɪᴠᴇ Fᴜɴᴄᴛɪᴏɴ	✓	Every element in the domain matches to at least one element in the codomain. Some values in the codomain match to two elements in the
Bɪᴊᴇᴄᴛɪᴠᴇ Fᴜɴᴄᴛɪᴏɴ	✘	codomain. For example, 2^2 and $(-2)^2$ both map on to 4.

Question 5 (f)

This is not a function because x values have two y values.

Iɴᴊᴇᴄᴛɪᴠᴇ Fᴜɴᴄᴛɪᴏɴ ✘

Sᴜʀᴊᴇᴄᴛɪᴠᴇ Fᴜɴᴄᴛɪᴏɴ ✘

Bɪᴊᴇᴄᴛɪᴠᴇ Fᴜɴᴄᴛɪᴏɴ ✘