



1-4) Order 2 function machines:

$$y = \sqrt{x-5} \quad y = x^2 - 6$$

beginning input = 6

a) what order for the machines to get output = 5?

$$6 \rightarrow y = x^2 - 6$$

$$y = 6^2 - 6 = 36 - 6 = 30$$

$$y = \sqrt{x-5}$$

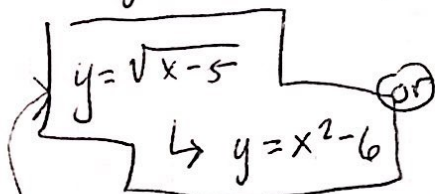
$$y = \sqrt{30-5} = \sqrt{25} = 5$$

So,  $y = x^2 - 6$  followed by  $y = \sqrt{x-5}$

b) is it possible to find an input that will get a final output of -5?

output is y value, input is x-value.

$$y = \sqrt{x-5} \quad y = x^2 - 6$$



$$y = x^2 - 6$$

$$\downarrow$$

$$y = \sqrt{x-5}$$

$$\text{output} = y \quad -5 = x^2 - 6$$

$$+6 \quad +6$$

$$\frac{1}{1} = x^2$$

Geo, reverse order, start with input = 6

$$\sqrt{1} = \sqrt{x^2}$$

$$1 = x^2 \text{ input, which is also}$$

the output of the machine before, put it in for y.

$$y = \sqrt{x-5}$$

$$(1)^2 = (\sqrt{x-5})^2$$

$$+5 = x - 5 = \sqrt{x} = 6$$

1.1.1

#1-4 to 1-8

absolute value

1-5) a)  $|54| = 54$

b)  $-|-7\frac{3}{5}| = -7\frac{3}{5}$

c)  $|3| - |-1| = 3 - 1 = 2$

d)  $|2.2 - 5.13| =$

$$\begin{array}{r} 5.13 \\ -2.20 \\ \hline 2.93 \end{array}$$

$$|-2.93| = 2.93$$

1-6) a) sketch figures 4 and 5.



fig 1

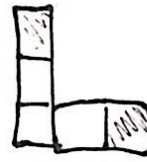


fig 2

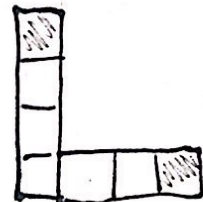


fig 3

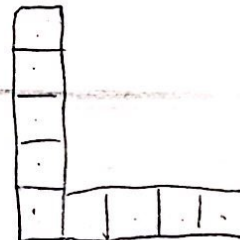


fig 4

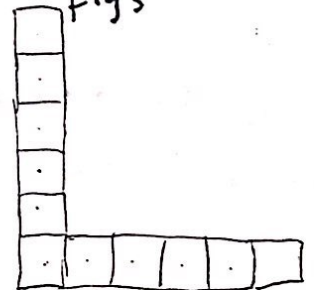


fig 5

b) How does the pattern grow?

The pattern grows by two tiles each time - one on the top, one to the right.

c) How many tiles will there be in figure 0? Explain how you know.

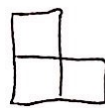


fig 0

→ if pattern grows by 2 each time, if you subtract two, figure 0 will have 1

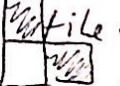


fig 0

fig 1

1-7) Simplify.

$$a) -42 + (-17) = \begin{matrix} -42 \\ +17 \\ \hline -59 \end{matrix}$$

$$b) 8 - (-9) = 8 + 9 = 17$$

$$c) 8(-9) = -72$$

$$d) -42 \div (-7) = 6$$

$$e) (-2)(-3)(-4) = \begin{matrix} (-2)(-3) \\ \hline 6(-4) \\ \hline -24 \end{matrix}$$

$$f) -18 - 7 = \begin{matrix} -18 \\ +7 \\ \hline -25 \end{matrix}$$

$$g) (-5)^2 = 25$$

$$h) -5^2 = -(5)(5) = -25$$

$$i) \sqrt{49} = 7$$

1-8) Find  $y$  if  $x=2$

$$a) y = 7 - |x|$$

$$y = 7 - |2|$$

$$y = 7 - 2 = 5$$

$$b) y = x^2 - 1$$

$$y = (2)^2 - 1 = 4 - 1 = 3$$

$$c) y = \sqrt{x+14}$$

$$y = \sqrt{2+14} = \sqrt{16} = 4$$