

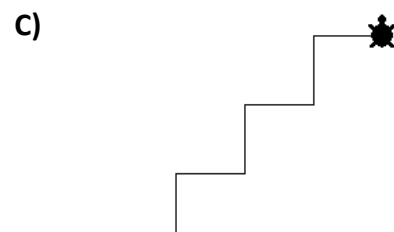
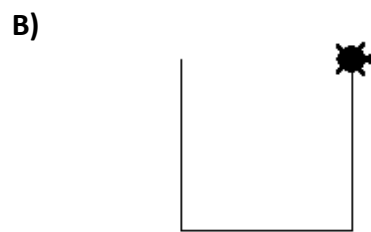
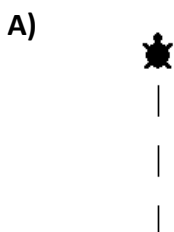
**EXERCISE 1**

- |               |                 |                |              |
|---------------|-----------------|----------------|--------------|
| 1. microworld | 6. repeat       | 11. star       | 16. everyone |
| 2. turtle     | 7. instructions | 12. setheading | 17. tto      |
| 3. trace      | 8. full         | 13. glide      | 18. towards  |
| 4. cg         | 9. back / bk    | 14. clean      | 19. ht / st  |
| 5. pd         | 10. degrees     | 15. bg         | 20. 1..30    |

**EXERCISE 2**

- A) `repeat 4 [fd 50 rt 90]`  
B) `repeat 3 [fd 150 rt 120]`  
C) `repeat 5 [fd 70 rt 72]`  
D) `repeat 6 [fd 130 rt 60]`  
E) `repeat 8 [fd 60 rt 45]`  
F) `repeat 20 [fd 30 rt 18]`

**EXERCISE 3**



**EXERCISE 4**

- A) `pd`  
`fd 100 rt 45`  
`fd 100 rt 90`  
`fd 100 rt 45`  
`fd 100 rt 90`  
`fd 140`  
`rt 90`
- B) `repeat 360 [fd 2 rt 1]`

## EXERCISE 5

A) pd  
repeat 4 [fd 200 rt 90]  
repeat 4 [fd 150 rt 90]  
repeat 4 [fd 100 rt 90]  
repeat 4 [fd 50 rt 90]

B) pd  
repeat 3 [fd 200 rt 120]  
repeat 3 [fd 150 rt 120]  
repeat 3 [fd 100 rt 120]  
repeat 3 [fd 50 rt 120]

C) pd  
repeat 360 [fd 1 rt 1]  
repeat 360 [fd 2 rt 1]  
repeat 360 [fd 3 rt 1]

## EXERCISE 6

### 1<sup>st</sup> shape

```
pd
repeat 4 [fd 100 rt 90]
rt 90
repeat 4 [fd 100 rt 90]
rt 90
repeat 4 [fd 100 rt 90]
rt 90
repeat 4 [fd 100 rt 90]
rt 90
```

---

```
pd
repeat 4
  [repeat 4 [fd 100 rt 90]
   rt 90]
```

### 2<sup>st</sup> shape

```
pd
repeat 3 [fd 100 rt 120]
rt 90
repeat 3 [fd 100 rt 120]
rt 90
repeat 3 [fd 100 rt 120]
rt 90
repeat 3 [fd 100 rt 120]
rt 90
```

---

```
pd
repeat 4
  [repeat 3 [fd 100 rt 120]
   rt 90]
```

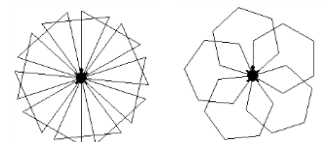
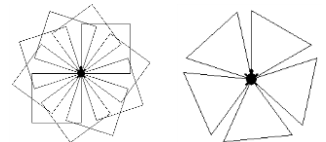
## EXERCISE 7

A) pd  
**repeat** 10 [**repeat** 4 [fd 100 rt 90] rt 36]

B) pd  
**repeat** 5 [**repeat** 3 [fd 100 rt 120] rt 72]

C) pd  
**repeat** 10 [**repeat** 3 [fd 100 rt 120] rt 36]

D) pd  
**repeat** 5 [**repeat** 6 [fd 100 rt 60] rt 72]



## **EXERCISE 8**

- 1) setbg 45
  - 2) newturtle "t1 st
  - 3) setpos [-200 150]
  - 4) newturtle "t2 st
  - 5) setpos [200 -150]
  - 6) t1, setc 15  
t2, setc 105
- t1, towards "t2 glide 200 0.1
- 7) t2, towards "t1 glide 200 0.5
  - 8) everyone [rt 45]
  - 9) everyone [pd repeat 4 [fd 50 rt 90]]
  - 10) clean
  - 11) setbg 0
  - 12) tto [t1 t2] setheading 0
  - 13)