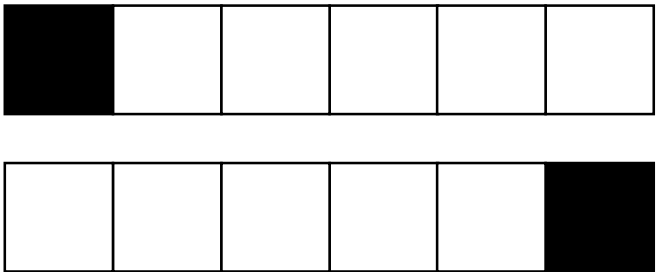# ENCODING

IMAGES

Define the encoding rules for this case

REVIEW

IMAGE RULES

✓ The image has 6 pixels
✓ Always 1 black pixel *(and only 1)*
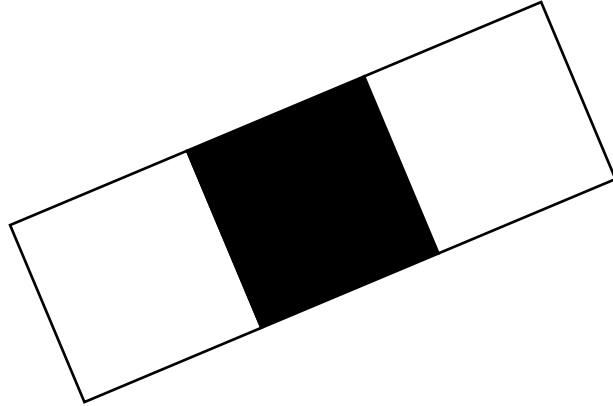✓ The black pixel can be only at first of last position

Only
2 options !

ENCODING RULES

Meaning	Encoding in decimal	Encoding in binary
Black is on first position or on last position	0 FIRST POSITION 1 LAST POSITION	0 FIRST POSITION 1 LAST POSITION

Part 1

CHALLENGE 2

Understand the **possible values**

IMAGE RULES

✓ The image has 3 pixels
✓ 1 to 3 black pixels
✓ The black pixels can be anywhere

Which one of the follow image are correct, regarding the rules ?

A

C

E

B

D

F

IMAGE RULES

- ✓ The image has 3 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels can be anywhere

Which one of the follow image are correct, regarding the rules ?
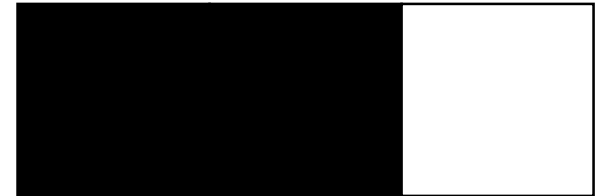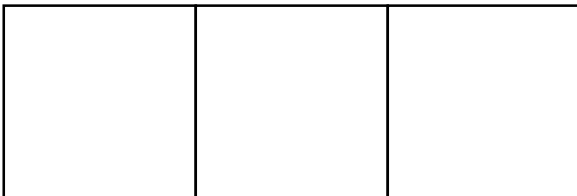
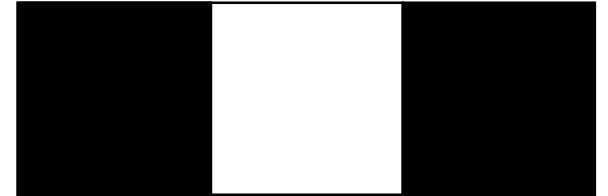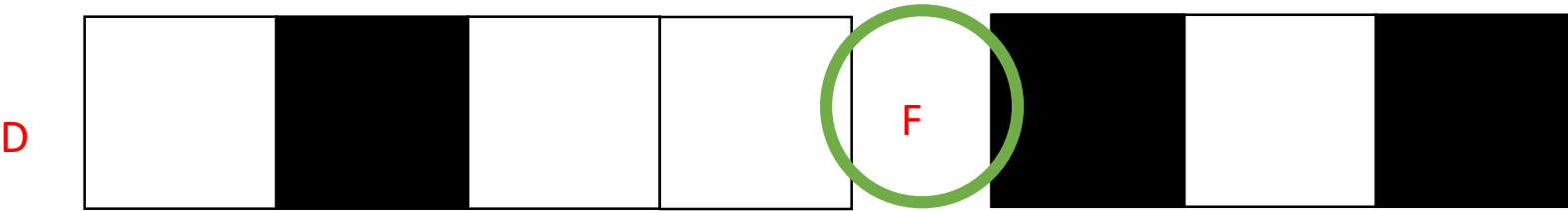# **Define** the encoding rules

IMAGE RULES

- ✓ The image has 3 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels can be anywhere

	Meaning	Encoding in decimal	Encoding in binary
Part 1			
Part 2			
Part 3			

2 **Define** the encoding rules

IMAGE RULES

- ✓ The image has 3 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels can be anywhere

Meaning	Encoding in decimal	Encoding in binary
Color of the first pixel	0 black 1 white	0 1
Color of the 2nd pixel	0 black 1 white	0 1
Color of the 3th pixel	0 black 1 white	0 1

Part 1

Part 2

Part 3

Apply the encoding rules

IMAGE RULES

- ✓ The image has 3 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels can be anywhere

Meaning	Encoding in decimal	Encoding in binary
Color of the first pixel	0 black 1 white	0 1
Color of the 2nd pixel	0 black 1 white	0 1
Color of the 3th pixel	0 black 1 white	0 1

Now following your encoding rules, retrieve the image related to each encoding

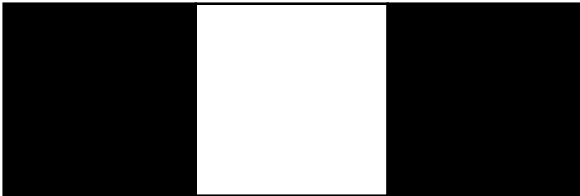Encoding   0 1 0   1 0 1   0 0 0

Image   ⬛⬜⬛   ?   ?

Apply the encoding rules

IMAGE RULES

- ✓ The image has 3 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels can be anywhere

Meaning	Encoding in decimal	Encoding in binary
Color of the first pixel	0 black 1 white	0 1
Color of the 2nd pixel	0 black 1 white	0 1
Color of the 3th pixel	0 black 1 white	0 1

Now following your encoding rules, retrieve the image related to each encoding
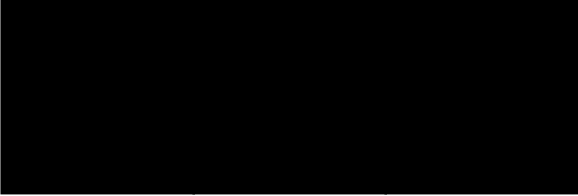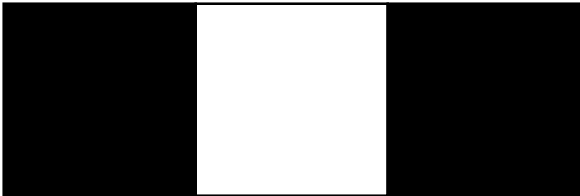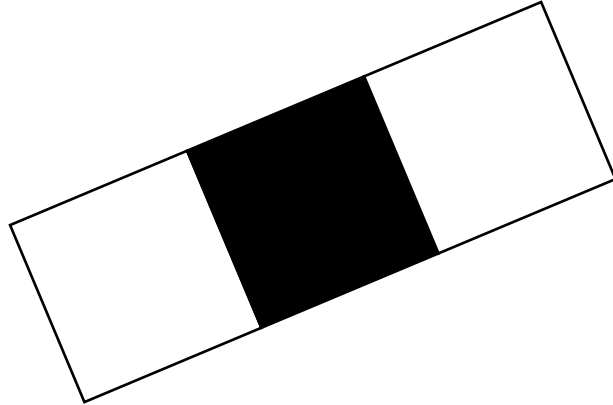
Encoding

0 1 0   1 0 1   0 0 0

Image

CHALLENGE 3

Understand the **possible values**

IMAGE RULES

- ✓ The image has 1 to 4 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels shall be together

Which one of the follow image are correct, regarding the rules ?

A

B

C

D

E

F

① Understand the **possible values**

IMAGE RULES

- ✓ The image has 1 to 4 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels shall be together

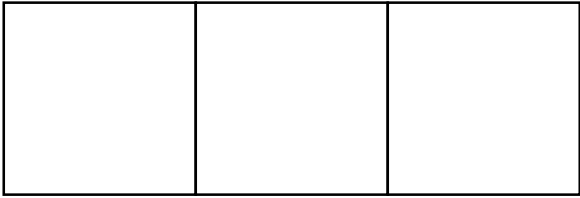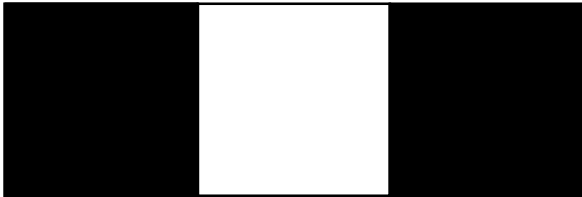*Which one of the follow image are correct, regarding the rules ?*

A

C

E

B

D

F

Define the encoding rules
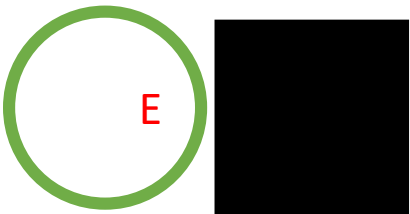
IMAGE RULES

- ✓ The image has 1 to 4 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels shall be together

	Meaning	Encoding in decimal	Encoding in binary
Part 1			
Part 2			
Part 3			

② **Define** the encoding rules

IMAGE RULES

> ✓ The image has 1 to 4 pixels
> ✓ 1 to 3 black pixels
> ✓ The black pixels shall be together

Meaning	Encoding in decimal	Encoding in binary
Part 1 Width of the image in pixel	1..4	001 Image has 1 pixel 010 Image has 2 pixels 011 Image has 3 pixels 100 Image has 4 pixels
Part 2 The first black pixel position	0..3	00 first black at position 0 01 first black at position 1 10 first black at position 2
Part 3 The number of black pixels	1..3	01 1 black 10 2 blacks 11 3 blacks

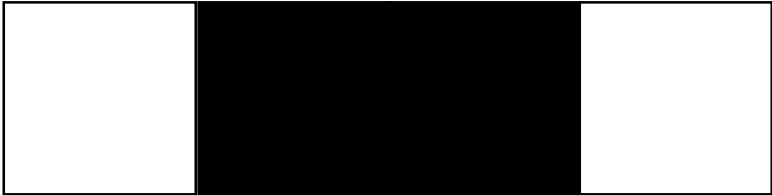# **Apply** the encoding rules

IMAGE RULES

- ✓ The image has 1 to 4 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels shall be together

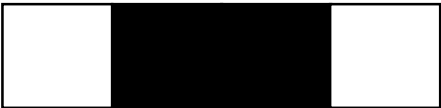| Meaning	Encoding in decimal	Encoding in binary
Width of the image in pixel	1..4	001 Image has 1 pixel 010 Image has 2 pixels 011 Image has 3 pixels 100 Image has 4 pixels
The first black pixel position	0..3	00 first black at position 0 01 first black at position 1 10 first black at position 2
The number of black pixels	1..3	01 1 black 10 2 blacks 11 3 blacks

Now following your encoding rules, retrieve the image related to each encoding

Encoding

100 01 10

Image has 4 pixel | Black start At position 1 | 2 pixels black

011 00 01

010 00 11

Image

?

?

Apply the encoding rules

IMAGE RULES

- ✓ The image has 1 to 4 pixels
- ✓ 1 to 3 black pixels
- ✓ The black pixels shall be together

Meaning	Encoding in decimal	Encoding in binary
Width of the image in pixel	1..4	001 Image has 1 pixel 010 Image has 2 pixels 011 Image has 3 pixels 100 Image has 4 pixels
The first black pixel position	0..3	00 first black at position 0 01 first black at position 1 10 first black at position 2
The number of black pixels	1..3	01 1 black 10 2 blacks 11 3 blacks

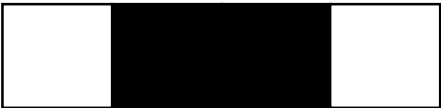*Now following your encoding rules, retrieve the image related to each encoding*

Encoding

100 01 10

2 pixels black

011 00 01

010 00 11

NOT CORRECT !

Image