

91908R



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

COMMON ASSESSMENT TASK

Level 3 Digital Technologies and Hangarau Matihiko 2022

91908 Analyse an area of computer science

Credits: Three

RESOURCE BOOKLET

This booklet contains resources for Digital Technologies and Hangarau Matihiko 91908.

Refer to it if you have chosen to answer Question Two or Question Three.

Check that this booklet has pages 2–5 in the correct order and that none of these pages is blank.

IF THIS BOOKLET HAS BEEN PRINTED, YOU MUST HAND IT BACK TO YOUR TEACHER AT THE END OF THE ASSESSMENT SESSION.



COMPUTER GRAPHICS

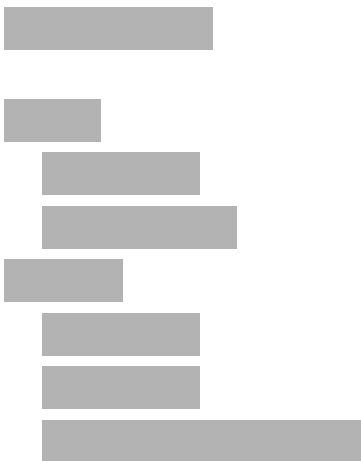
RESOURCE A: Isometric pixel art



RESOURCE B: Bresenham's line drawing algorithm (option 1)



Bresenham's line drawing algorithm (option 2)

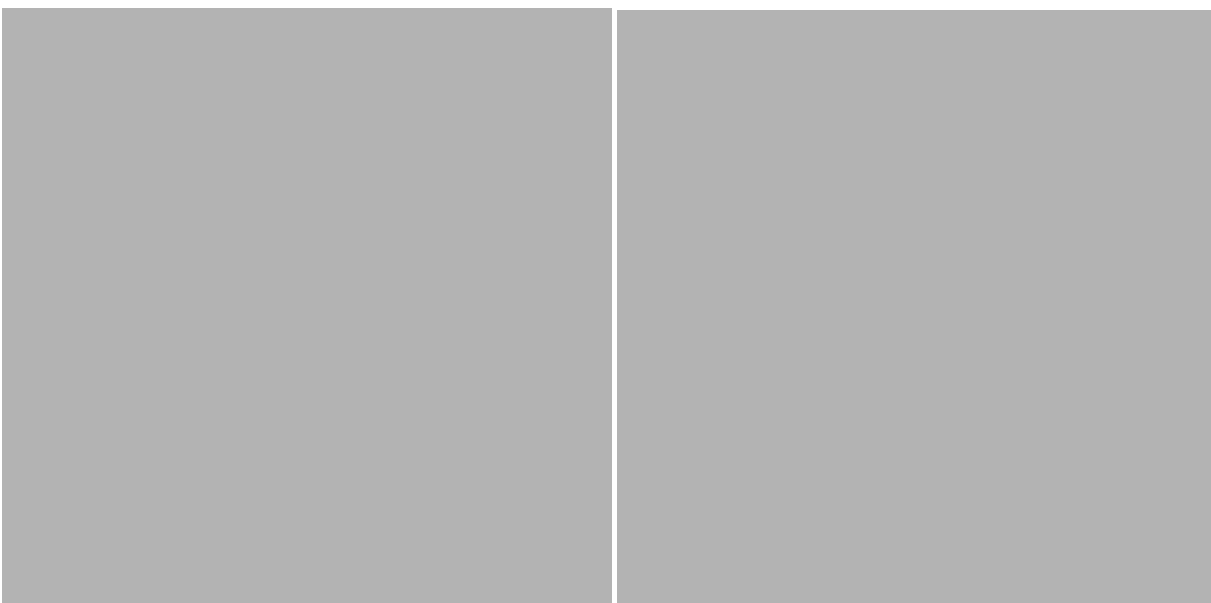


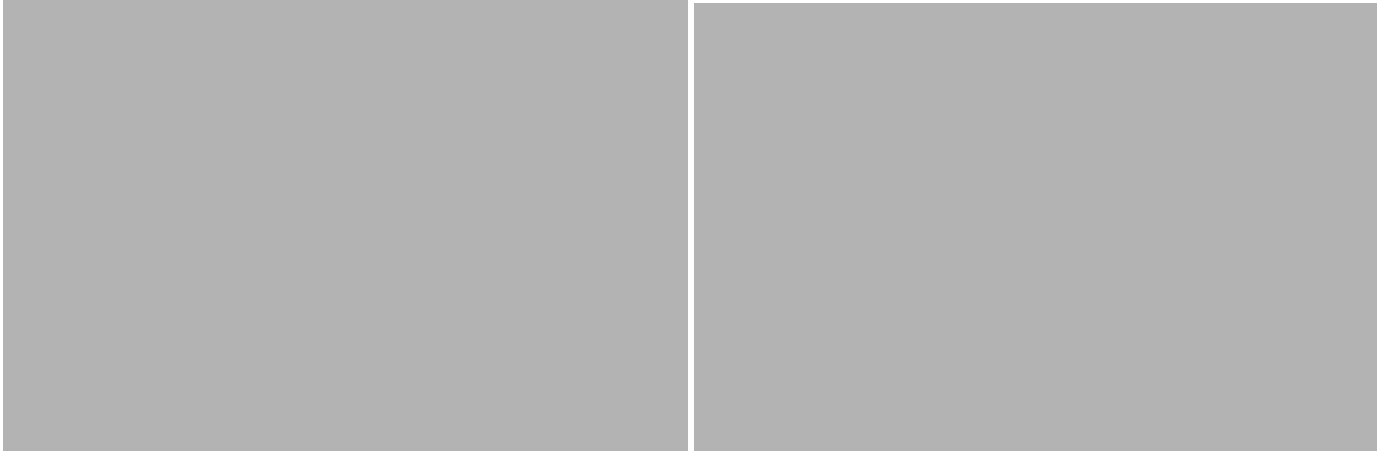
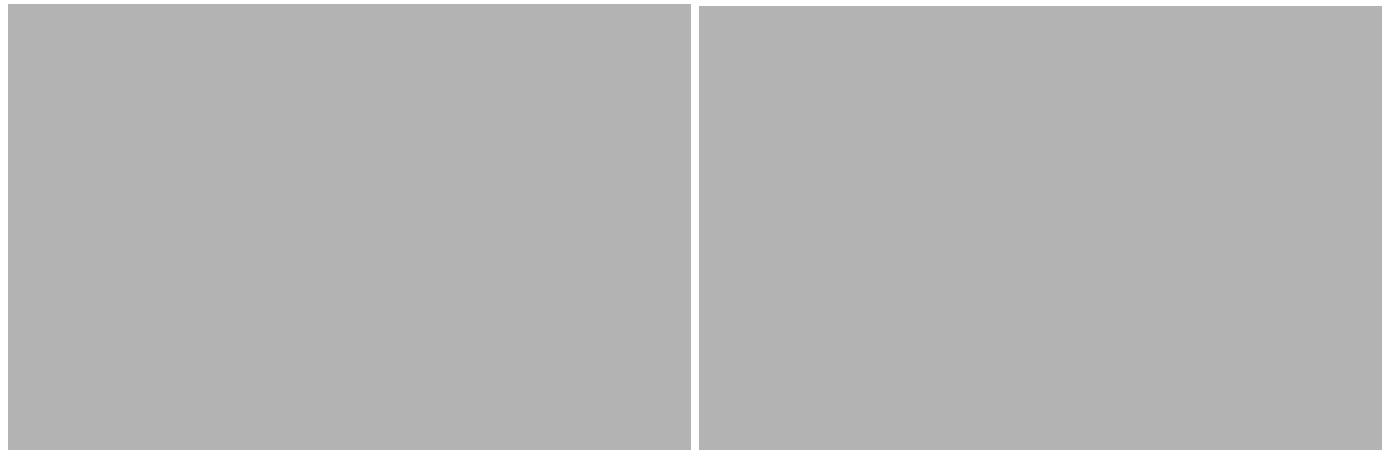
COMPUTER VISION

RESOURCE C: Noise



RESOURCE D: Gaussian noise and denoising an image



RESOURCE E: Edge detection**RESOURCE F: Smoothing****RESOURCE G: Gradient calculation**

RESOURCE H: Prewitt gradient edge detector masks

-1	0	+1
-1	0	+1
-1	0	+1

 G_x

+1	+1	+1
0	0	0
-1	-1	-1

 G_y **Acknowledgements**

Material from the following sources has been adapted for use in this assessment:

RESOURCE A: Isometric pixel art

<https://design.tutsplus.com/tutorials/create-an-isometric-pixel-art-character-in-adobe-photoshop--cms-21825>

RESOURCE B: Bresenham's line drawing algorithm

<https://www.csfieldguide.org.nz/en/chapters/computer-graphics/drawing-lines-and-circles/>

RESOURCE C: Noise

<https://dsp.stackexchange.com/questions/34126/random-noise-removal-in-images>

RESOURCE D: Gaussian noise and denoising an image

https://www.researchgate.net/figure/A-noisy-house-image-gaussian-noise-and-the-denoised-image_fig5_226428136

RESOURCES E, F, and G: Edge detection, Smoothing, and Gradient calculation

<https://web.stanford.edu/class/cs315b/assignment1.html>