Escher and the Endless Staircase

NAME: .....

CLASS: .....

DATE: .....

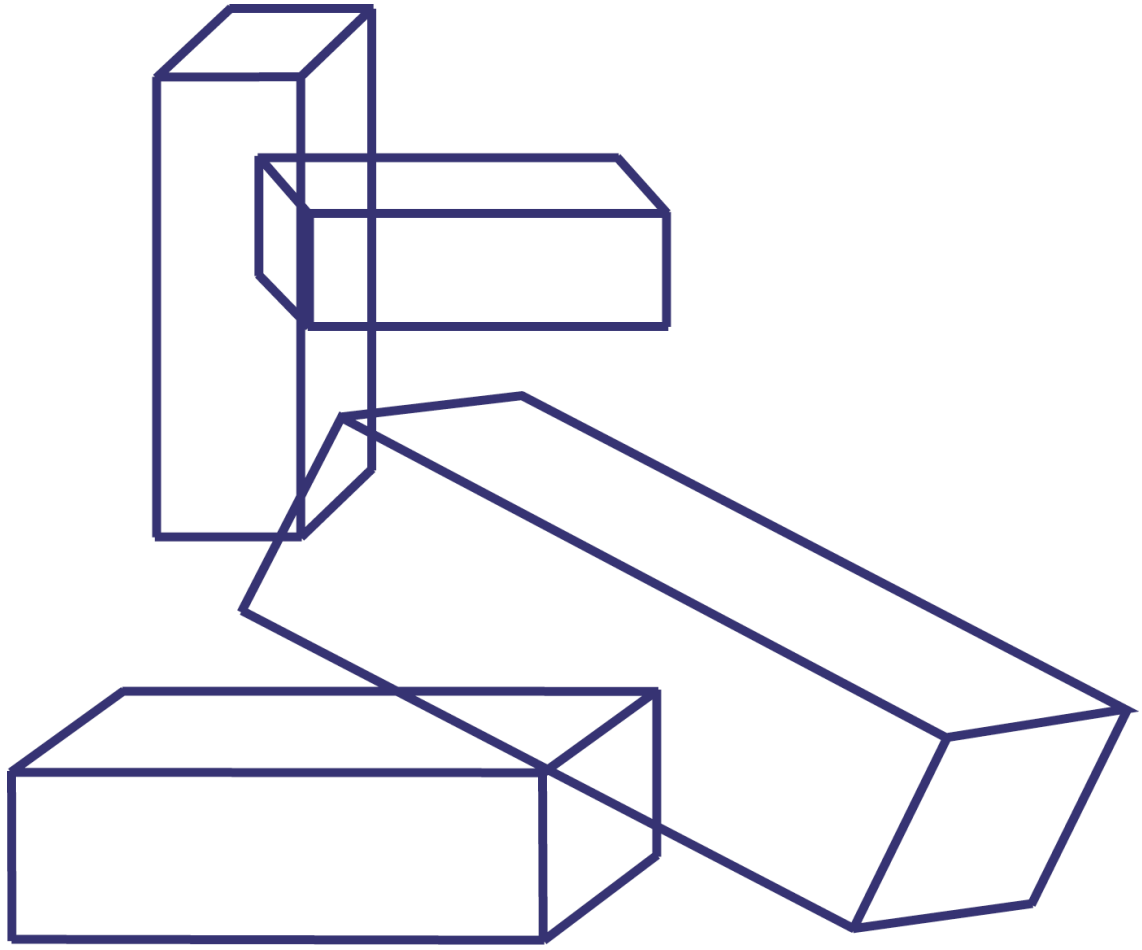
Basic/Core

Below are four cuboids that have been drawn without a sense of depth, i.e. there is no indication of which cuboid is at the front or which is at the back of the drawing. Using tracing paper, create a sense of depth by following the instructions below.

1) Trace over the cuboid you wish to be at the front of the drawing.

2) Next, trace over the cuboid you wish to be directly behind the first cuboid. Do not trace any parts which overlap the first cuboid.

3) Repeat this process with the remaining two cuboids.



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Advanced

Proof By Contradiction
(for discussion)

1) One way to show that a statement is true is to first assume that it is false, then to look for an implication of it being false which leads to a contradiction, and thus conclude that the original statement is true. In this way prove that:

a) a triangle can only have one right angle.

b) a polygon must have at least three sides.

c) at most a triangle only has one right angle.

d) an octagon has eight sides.

e) all the angles in an equilateral triangle are 60°.

2) For these complex numbers, calculate the following:

a) $i + 5i$ b) $2 + 4 + 6i$ c) $2i + i$ d) $-8i – 7i$

e) $-1 – 8i – 4 – i$ f) $7 + i + 4 + 4i$ g) $4i(-2 – 8i)$ h) $(7 – 6i)(-8 + 3i)$

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ANSWERS

Advanced

2) a) 6i **b) 6+6i** **c) 3i** **d) -15i**

e) -5-9i **f) 11+5i** **g) -8i+32** **h) -38+69i**