

STAPLE HERE

FOR OFFICIAL USE

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X033/13/01

NATIONAL TUESDAY, 21 MAY
 QUALIFICATIONS 9.00 AM – 12.00 NOON
 2013

GRAPHIC
 COMMUNICATION
 ADVANCED HIGHER

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

80 marks are allocated to this paper.

- 1 Answer **all** questions.
- 2 Read each question carefully before you answer.
- 3 Written answers may be in **ink** or **pencil**.
- 4 Drawings and sketches **must be in pencil**.
- 5 Coloured pencils may be used when sketching.
- 6 Dimensions are given in millimetres or as stated.
- 7 Orthographic drawings are in third angle projection.
- 8 The leaflet for Questions 1 and 2 has been supplied separately. Please ensure that you have this leaflet.
- 9 **At the end of the examination**
 - check that your name is on every sheet;
 - put the sheets in correct numerical order;
 - place this sheet on top of the others;
 - join all sheets together by **stapling** at the top left-hand corner;
 - before leaving the examination room, you must give these sheets to the Invigilator (if you do not you may lose all the marks for this paper).

Marks Grid

Question	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
Total Marks	



1

Using the "Autodesk Create" leaflet.

Identify **three Design Principles** that are used in the leaflet, and describe how they are used.

Design Principle 1

Description:

2

Design Principle 2

Description:

2

Design Principle 3

Description:

2

Total (6)

2

Using the "Autodesk Create" leaflet.

Identify **three Design Elements** that are used in the leaflet, and describe how they are used.

Design Element 1

Description:

2

Design Element 2

Description:

2

Design Element 3

Description:

2

Total (6)

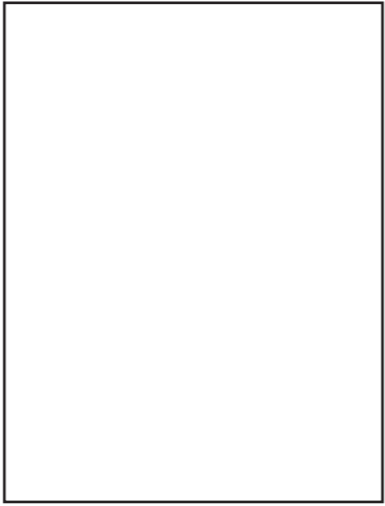
Candidate's Name _____

3

There are three main types of balance used in DTP publications.

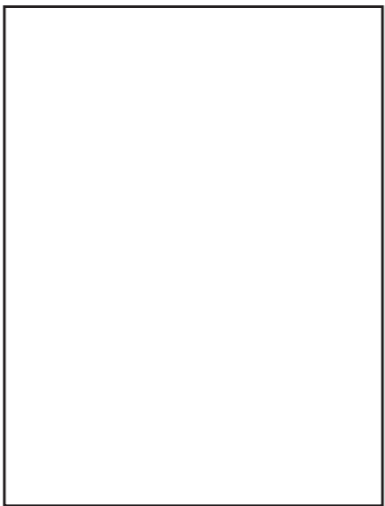
In the space below, state and sketch **two** DTP balances.

(a) Balance:



1

(b) Balance:



1

Total (2)

4

In Computer Aided 3D Modelling, lighting is used to enhance a model.

Describe, with the aid of sketches if necessary, the effect the following lighting types will have.

(a) Spot

1

(b) Distant

1

(c) Ambient

1

Total (3)

5

An advertising leaflet for the game of handball, ready to be sent to the printers, is shown below.
Correctly identify the features arrowed in the leaflet.

- (i)
- (ii)
- (iii)
- (iv)

Edge of paper

The leaflet contains the following text and images:

- Text 1:** **HANDBALL** is an extremely fast, 7 a-side game played indoors by two teams. It has similarities with both basketball and football, is fast moving and requires strength, speed and agility.
- Text 2:** A handball team is comprised of seven players, who work together to move the ball up the court and attempt to score a goal.
- Text 3:** The fast pace of the game results in many shots being taken, and teams can often score over 20 goals each.
- Text 4:** Like basketball, players rely on feints, body swerves, and huge leaps in the air to pass, control the ball and shoot.
- Text 5:** Unlike basketball, physical contact is allowed and legal body-checks can sometimes see players crashing to the ground!
- Image 1:** A photograph of a handball player in mid-air, about to shoot the ball.
- Image 2:** A photograph of several handball players in action on a court.
- Image 3:** A logo featuring a stylized handball player silhouette with a Union Jack pattern, with the text "BRITISH HANDBALL" below it.
- Image 4:** A handball with the text "Play Handball" written across it.

Labels and arrows:

- (i) points to a registration mark (crosshair) in the top left corner.
- (ii) points to the "BRITISH HANDBALL" logo.
- (iii) points to the handball image.
- (iv) points to a registration mark (crosshair) in the bottom left corner.

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Total (4)

6

The choice of print methods depends on many factors.
(a) Describe **three** such factors.

4

Listed below are two different printing requirements and a suggested printing process.
Explain the advantages and disadvantages of each process.

3

(b) Full colour magazine printed using offset lithography.

Advantages:

Disadvantages:

(c) Company logo onto polythene using flexography.

Advantages:

Disadvantages:

2

Total (7) 2

Candidate's Name _____

7

Explain, with the aid of sketches, the following 3D CAD modelling techniques and terms.

(a) solid created through extrusion along a path

1

(b) surfaces or solids created between two or more entities (eg edge surf, loft)

1

(c) solids created through revolution

1

(d) union

1

(e) intersection

1

Total (5)

Candidate's Name _____

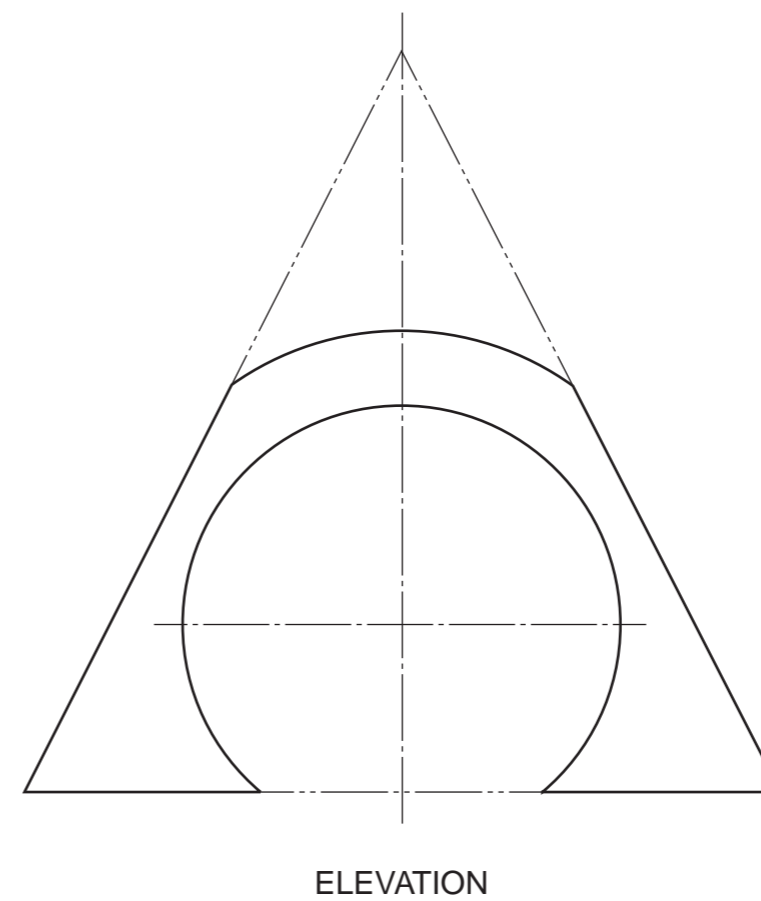
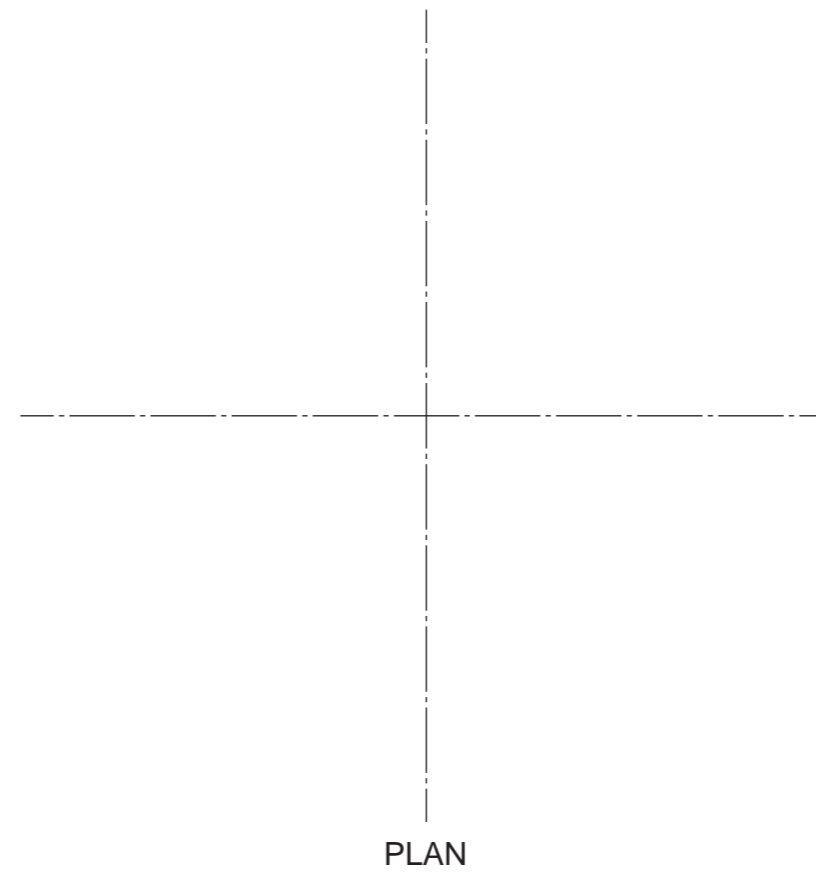
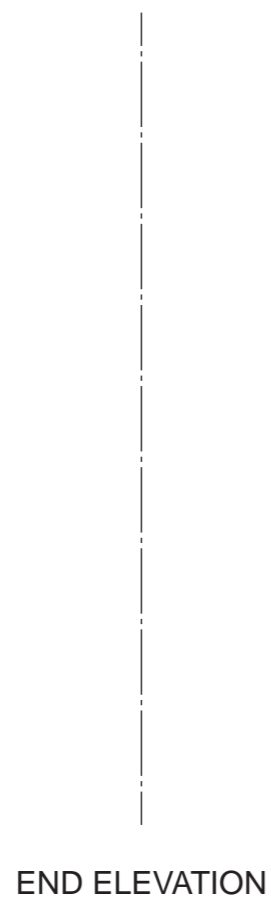
The elevation of a cut solid right cone is given.

Draw, in the positions indicated:

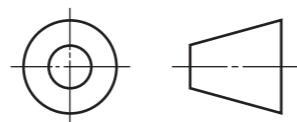
- (a) the end elevation;
- (b) the plan.

Show all hidden detail.

(9 marks)



<i>a</i>	
<i>b</i>	
<i>c</i>	
<i>d</i>	
<i>e</i>	
<i>f</i>	
<i>g</i>	
<i>h</i>	
<i>i</i>	
<i>j</i>	
<i>k</i>	
<i>l</i>	
<i>m</i>	
<i>n</i>	

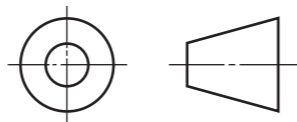
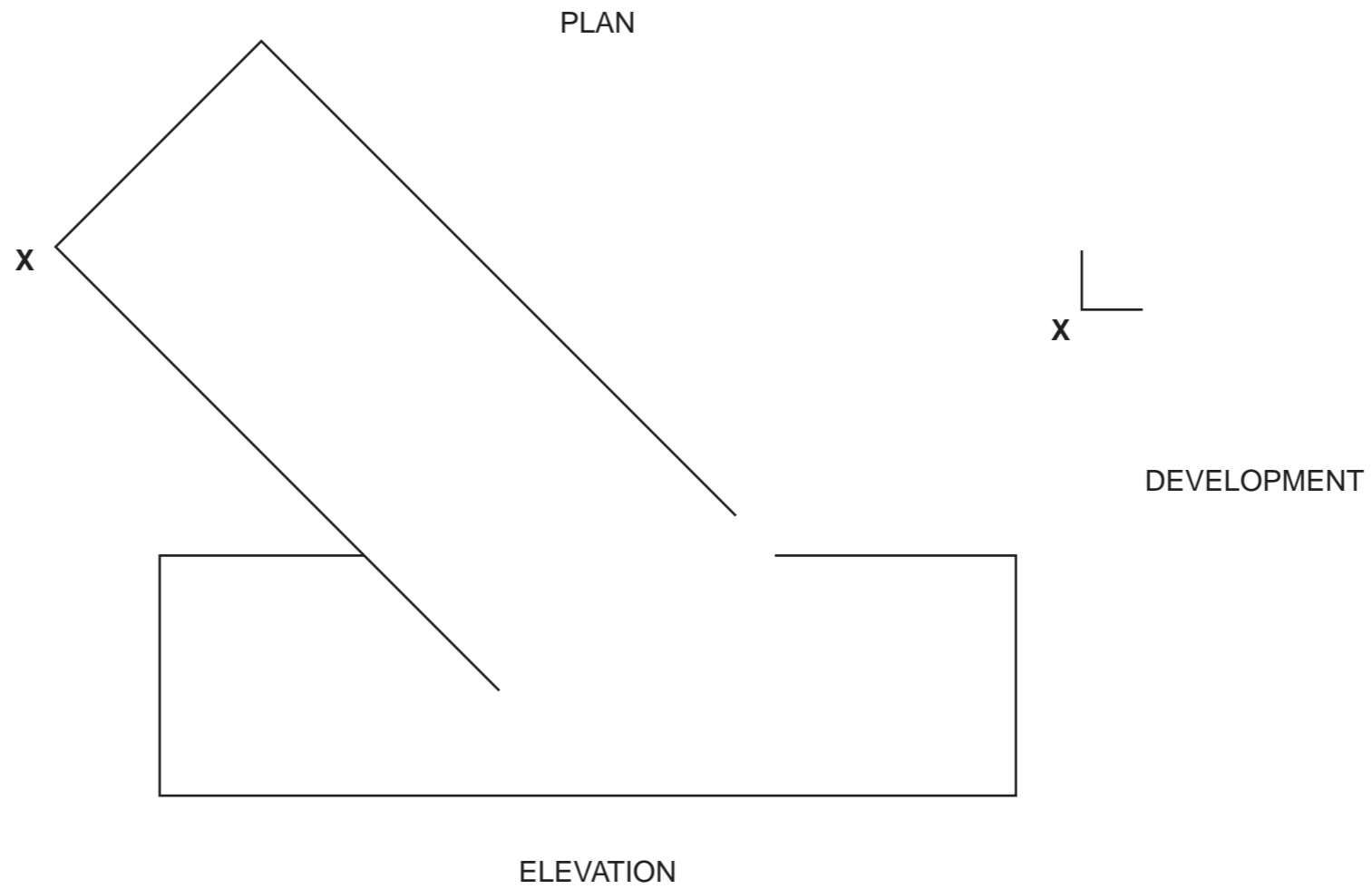
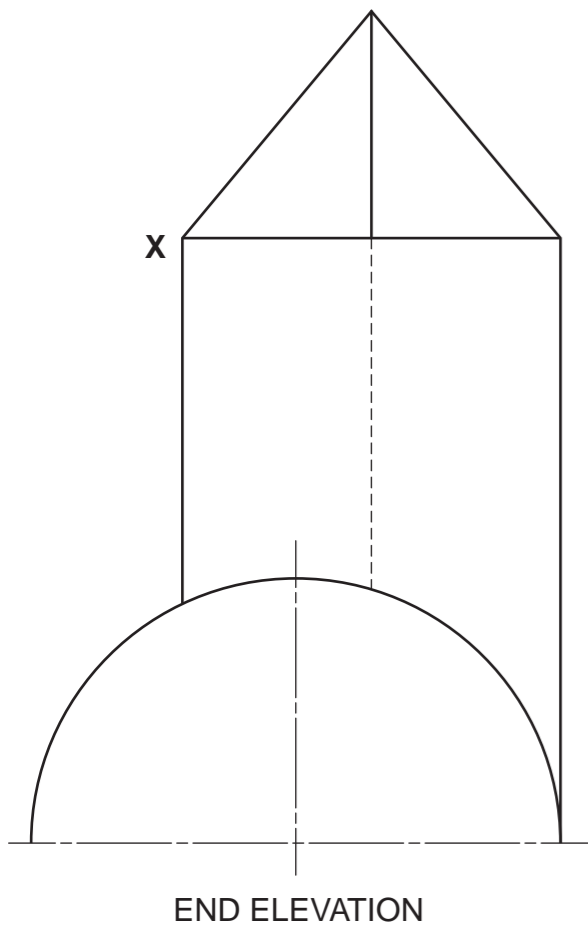


The incomplete elevation and end elevation of an intersecting semi-cylinder and triangular prism are given below.

Draw, the complete:

- (a) elevation;
- (b) plan;
- (c) surface development of the triangular prism.

Show all hidden detail. (12 marks)



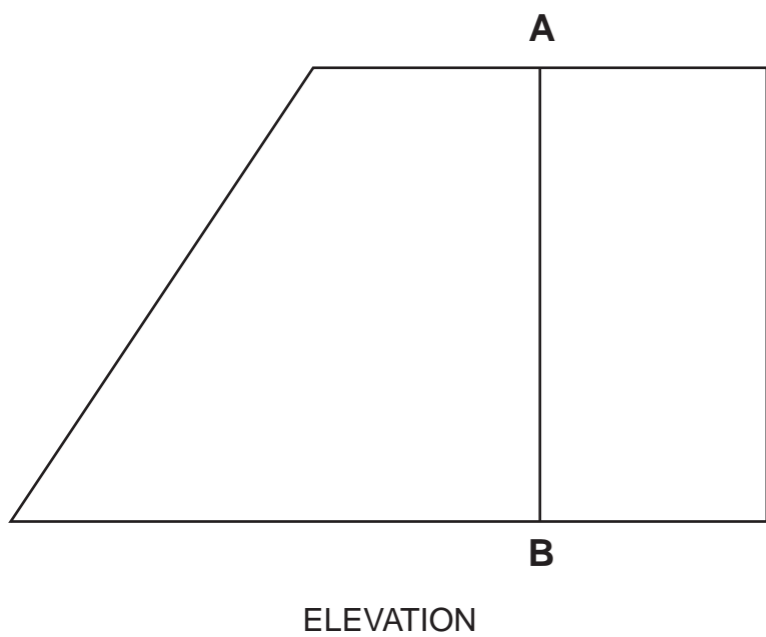
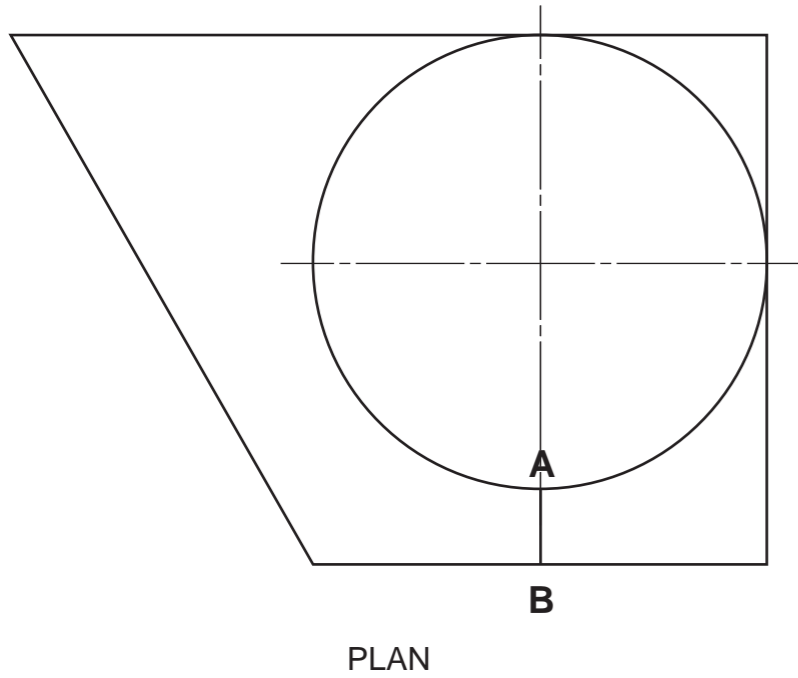
<i>a</i>	
<i>b</i>	
<i>c</i>	
<i>d</i>	
<i>e</i>	
<i>f</i>	
<i>g</i>	
<i>h</i>	
<i>i</i>	
<i>j</i>	
<i>k</i>	
<i>l</i>	
<i>m</i>	
<i>n</i>	

10

The elevation and plan of a transition piece are shown below.

Draw, in the position indicated, the surface development of the transition piece starting at seam **AB**.

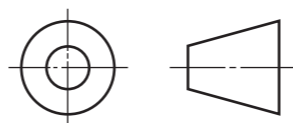
(14 marks)



A _____ B
SURFACE DEVELOPMENT

Section B 10

a	
b	
c	
d	
e	
f	
g	
h	
i	
j	
k	
l	
m	
n	



11

The elevation, end elevation and plan of a Patio are given below.
The spectator point (SP), plane of projection (PP), ground line (GL) and eye level (EL) are also given.

Draw, from the given views a measured perspective view of the Patio.

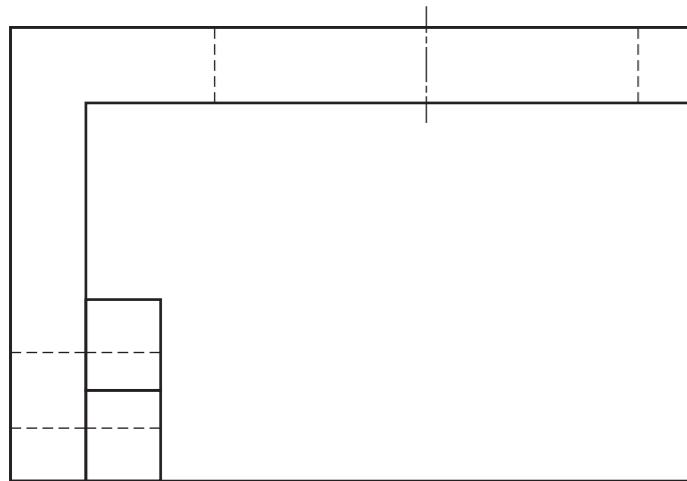
Do not show hidden detail.

(12 marks)

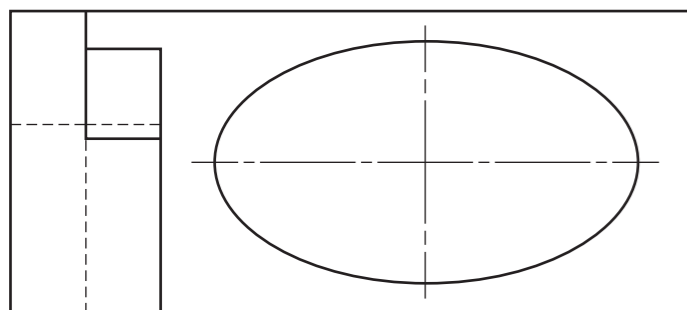
EL

GL

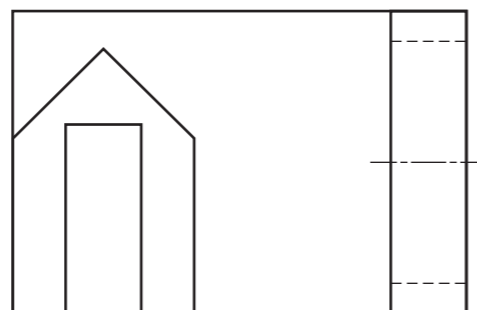
PP



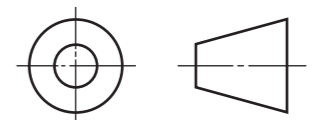
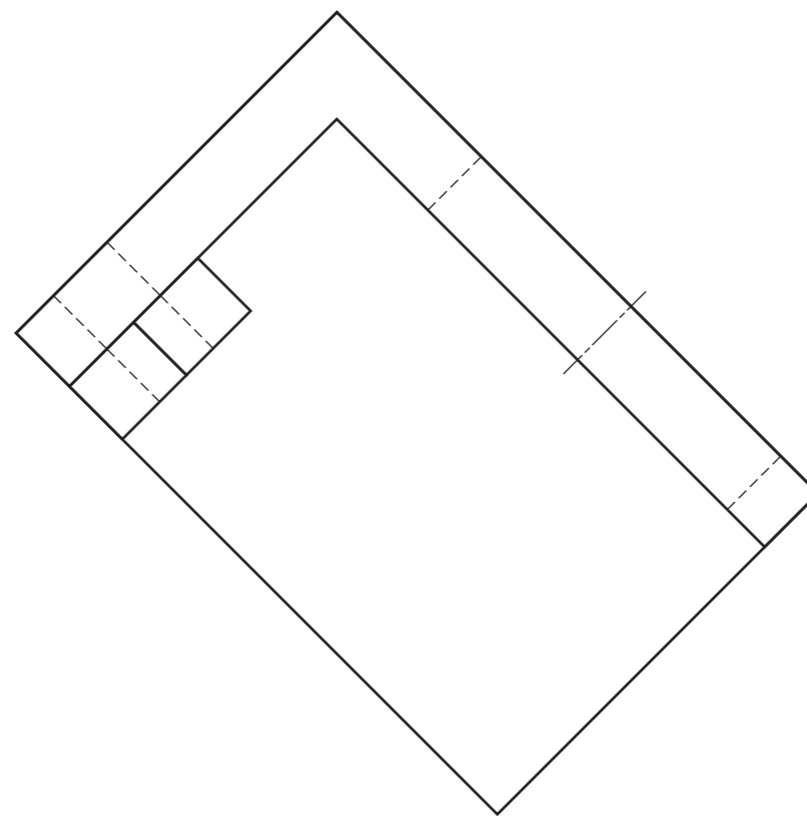
PLAN



ELEVATION



END ELEVATION



<i>a</i>	
<i>b</i>	
<i>c</i>	
<i>d</i>	
<i>e</i>	
<i>f</i>	
<i>g</i>	
<i>h</i>	
<i>i</i>	
<i>j</i>	
<i>k</i>	
<i>l</i>	
<i>m</i>	
<i>n</i>	

ACKNOWLEDGEMENTS

Question 5—British Handball logo is reproduced by kind permission of the British Handball Association.

Leaflet—Autodesk “Create” Leaflet, October 2009, Issue 08. Permission is being sought from Autodesk Ltd.

Leaflet—Image of Nike Zoom training shoes are reproduced by NIKE, Inc, under their “fair use” policy.

X033/13/11

NATIONAL
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TUESDAY, 21 MAY
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GRAPHIC
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Leaflet for use with
Questions 1 and 2



Interactive development

Kasey Jarvis' seemingly bottomless treasure trove of ideas, as well as his deep knowledge of 3D modelling, was of course more than welcome at Nike. "I have always understood 3D and found it natural to work and think in that way," he says. "At school I learned how to draw using the computer. I also had an old Atari at home and experimented with a joystick in order to draw more freely. Today, with all the amazing programs for design and visualisation available on the market, the possibilities are endless."

scrapheap challenge

The idea - making a "patchwork" shoe from waste material turned out to be a smart decision, but the challenges were great and when the Canadian NBA pro Steve Nash first showed interest, the concept was taken to the next level.

"We understood that the shoe was doable if only we designed it right. We would need optimum sizes for the patches, with a variety of colours and textures all carefully stitched together. In such large design

TIPS and TRICKS Custom UCS

1 In Fig.1 we have a simple shape. To construct a spout we have to add 3 work planes and then place the sketch on it and extrude our feature to the body of the shape, as in Fig. 2

2 The problem comes when you want to change the feature, perhaps move it away or rotate it: it can be done but can be some what cumbersome.

3 But, if the same feature is built using a Custom UCS, things become very easy... With the same file we click on the custom UCS icon, (Fig. 3). Then place by clicking on the screen or using the coordinates, input boxes for X, Y and Z placement. (Fig. 4)

4

5 Now when we create our feature we can use any of the work planes associated with the Custom UCS (Fig. 5)

6 It becomes very easy to move or rotate the feature, simply right click on the Custom UCS icon and select "REDIFINE FEATURE", then you can drag the icon in any direction via the arrow head and rotate by dragging any of the arrow shafts. (Fig. 6 & 7) When the icon has been repositioned, right click and select "FINISH"

7

8 The model will re-build itself instantly and update the feature (Fig. 8). Easy !!!

create

OCTOBER 09 // ISSUE 08

Explore new ways for students to visualise their ideas with Animation Academy

Encourage creativity, critical thinking and problem solving with Design Academy

Trash Talk – the evolution of the green trainer from Nike

← SIDE ONE

SIDE TWO →

welcome...

Welcome to your new look autumn edition of Create magazine. This edition has been revamped based on your feedback and we hope you find it a useful and informative piece. Read on to find out more about the new secondary school solutions now available and how these will help you inspire students to think creatively, independently and pro-actively. Learn how Autodesk is being used by leading sports brand Nike and finally, get the latest tips and tricks for Autodesk Inventor.

Autodesk Animation Academy 2010

Autodesk® Animation Academy 2010 is an innovative and exciting software bundle that delivers four powerful 3D applications for one affordable price. This effective learning tool creates an intersection between core subjects and the arts, enabling students to learn the technology while exploring new ways to visualise their ideas.

Autodesk Animation Academy introduces students to professional tools and creative career options, whilst:

- Encouraging creativity, critical thinking, and problem solving.
- Supporting achievement in art, design, and animation.
- Blending traditional and digital creative learning into a seamless solution.
- Exploring industry workflow and processes.

Autodesk in Industry

Best Foot Forward

When the NBA (National Basketball Association) stars started playing basketball in footwear made from recycled material, commercial success for sports shoe manufacturer Nike was likely to follow.

Creating such a novel 'green shoe' concept involved 3D technology from Autodesk, as well as smart marketing and a vast research & development effort.

Autodesk Design Academy 2010

Inspire your students to pursue academic degrees and careers in architecture, engineering and design with Autodesk® Design Academy 2010—an extensive set of 2D and 3D design software and learning tools used by professionals worldwide. Autodesk Design Academy helps to advance secondary school education in key areas of mathematics, science, pre-engineering, architecture, pre-engineering, robotics, and sustainable design.

Autodesk Design Academy 2010: The Benefits

- Enables students to move between 2D and 3D design environments—offering design, visualisation and simulation capabilities to fully experience ideas digitally.
- Helps students to see the dynamic connection between science, technology, engineering and mathematics (STEM). Offers students and educators free* learning and curriculum materials, software for personal use and discussion forums—all accessible through the Student Engineering & Design Community

Autodesk® Revit® Architecture
Autodesk® Revit® MEP
Autodesk® Revit® Architecture
Autodesk® Revit® MEP
Autodesk® Inventor® Professional Suite
Autodesk® Civil 3D®
Autodesk® 3ds Max® Design

*when downloaded from Student Community with academic email address.

The Autodesk Animation Academy Software Bundle

Autodesk Animation Academy includes full versions of:

- Autodesk® 3ds Max® 2010
- Autodesk® Maya® 2010
- Autodesk® MotionBuilder® 2010
- Autodesk® Mudbox™ 2010

...along with free software for personal use via the Student Community.

Design Inspiration

Some five years ago, former General Motors designer Kasey Jarvis made an unconventional leap from the automotive to the footwear industry, bringing with him in-depth knowledge of a series of Autodesk design programs: Autodesk Atlas Studio, Showcase, Sketchbook Pro and Maya.