Math 8

Surface Area

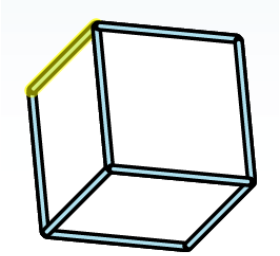
Name: _____ Date: _____

Video: Geometric Nets

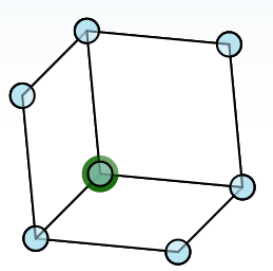
- Polyhedron (plural: polyhedra) is a three dimensional (3D) shape that has _____ surfaces and _____ edges, for example a cube is a polyhedron.

Additional Information

- Face: this is the term given to the two dimensional shapes (ie. flat) that make up a polyhedron, for example a cube is made up of six square faces
- Edge: this is the term given to the flat edges that make up a 3D shape, a cube for example has twelve edges



- Vertex (plural vertices): this is the term given to the corners of a 3D shape, a cube for example has eight vertices



Online Activity: Drawing Nets

- Before you begin select the checkbox 'show total' this will list how many faces, edges and vertices there are to each shape.
- On the 'Select a shape' dropdown menu work your way through all of the shapes, as you do this complete the table below

	Faces	Edges	Vertices
Cube			
Tetrahedron			
Octahedron			
Dodecahedron			
Icosahedron			

Online Activity: Cube Nets

- Click on all the nets that form the shape of a cube, draw three of these nets below

Online Activity: Print 3D Nets

- Use this website to print off 3D nets, cut out the nets and glue along the edges to form 3D shapes

Textbook Practice

- Read textbook pages 170-173
- Complete the following question from your textbook on page 174 Q6, 8, 9, 10, 11, 14
- Read textbook page 177-180
- Complete the following questions from your textbook on page 180 Q3, 4, 5, 6, 9, 10, 11

Video: REVIEW Calculating Area

- The area of a square and a rectangle can be calculated using the formula

Area = length x width

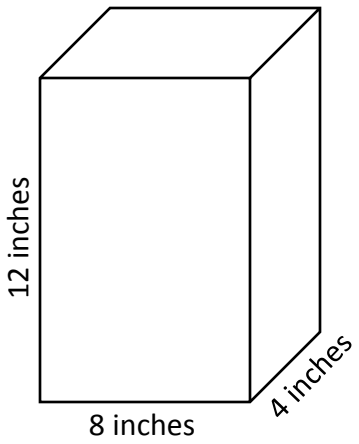
- The area of a triangle can be calculated using the formula

$$\text{Area} = \frac{1}{2}\text{(base x height)}$$

- Complete the following questions on area:
  1. A triangle with base 5cm and height 6cm. Area = _____
  2. A rectangle with length 10mm and width 5mm. Area = _____
  3. A triangle with base 8cm and height 3cm. Area = _____
  4. A rectangle with length 9in and width 3in. Area = _____

Video: SA of Rectangular Prism

- To find the surface area of a rectangular prism, all we are really doing is finding the area of all six rectangles or _____ of the rectangular prism, then _____ those areas together
- Follow along in the video and calculate the surface area for the following rectangular prism:

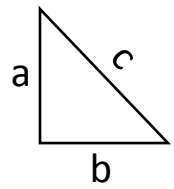


Textbook Practice

- Read textbook pages 183-185
- Complete the following question from your textbook on page 186 Q4, 5, 6abc, 7, 10ab, 13

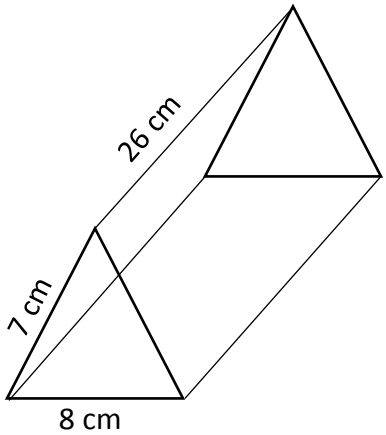
Video: SA of Triangular Prism (note: there are two videos to watch for this)

- Before you begin, recall the calculation used for right angled triangles (triangles with 90° angle) called Pythagorean Theorem: $a^2 + b^2 = c^2$



If a=4 and c=5 what is the length of b?

- Follow along in the video and calculate the surface area for the following triangular prism:



Textbook Practice

- Read textbook pages 188-190
- Complete the following question from your textbook on page 191 Q4, 5, 6, 7, 8, 9, 10, 15
- Read textbook pages 202-204
- Complete the following question from your textbook on page 205 Q4, 5, 6, 10, 11, 14, 15

Video: SA of a Cylinder

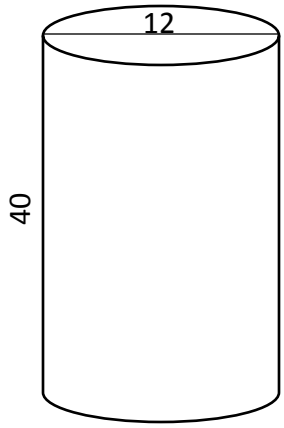
- What three 2D shapes does the net of a cylinder produce?

  _____

- The area of a circle is: Area = _____
- The formula for calculating the surface area of a cylinder is:

  _____

- Follow along in the video and calculate the surface area for the following cylinder:

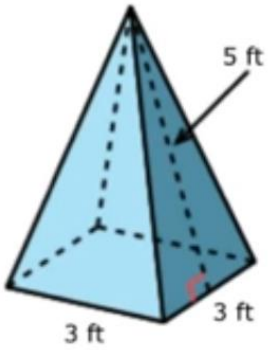


Textbook Practice

- Read textbook pages 209-211
- Complete the following question from your textbook on page 212 Q4, 6, 7, 8, 9, 10, 13

Video: ADVANCED: SA of Composite Shapes

- Start the video at time 9:37
- Follow along as she solves the following square based pyramid



- At time 16:09 follow along as she solves the following composite shape