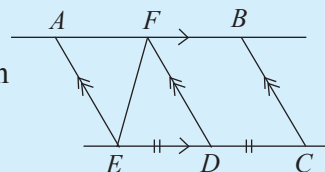


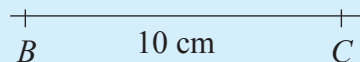
Review Exercise – Term 1

Part 1

1. Simplify $2\sqrt{3} - \sqrt{3}$
2. If $10^{0.5247} = 3.348$ find the value of $\lg 0.3348$.
3. According to the information in the figure, what fraction of the area of $ABCE$ is the area of AFE ?

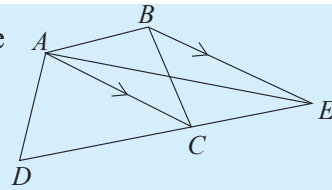


4. If $A^3 = x^3 - y^3 + 3x^2y - 3xy^2$ express A in terms of x and y .
5. A new solid is constructed by pasting together the square bases of two identical square based right pyramids. If the surface area of the new solid is 384 cm^2 , find the area of a triangular face of each pyramid.
6. Simplify: $\frac{2}{x-1} - \frac{1}{1-x}$
7. Evaluate: $\log_3 27 - \log_4 16$
8. The mass of a sphere made of a special type of material is 120 g. If the mass of 1 cm^3 of the material is 4g, find the volume of the sphere.
9. B and C in the figure are two fixed points that lie 10 cm from each other. Sketch the loci of the point A such that the area of the triangle ABC is 20 cm^2 .



10. If $\lg 5 = 0.6990$ find the value of $\lg 20$.
11. Show that the area of the curved surface of a cylinder of height the length of its diameter, is equal to the surface area of a sphere of the same diameter.
12. Find the value of $\sqrt{20}$ by taking that $\sqrt{5} = 2.23$.

13. Show that the area of the quadrilateral $ABCD$ in the figure is equal to the area of the triangle ADE .



14. Evaluate: $\sqrt{75} \times 2\sqrt{3}$.

15. Simplify: $\frac{3x}{x^2-1} \times \frac{x(x-1)}{3}$

Part II

1. (i) If $x + \frac{1}{x} = 3$ then find the value of $x^3 + \frac{1}{x^3}$.

- (ii) Simplify: $\frac{m^2 - 4n^2}{mn(m + 2n)} \div \frac{m^2 - 4mn + 4n^2}{m^2n^2}$

2. (i) For what value of x is $2 \lg x = \lg 3 + \lg (2x - 3)$

- (ii) If $2 \lg x + \lg 32 - \lg 8 = 2$ determine x .

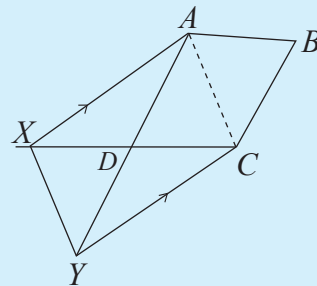
- (iii) Find the value without using the logarithms table.

$$\lg_2 \frac{3}{4} - 2 \lg_2 \left(\frac{3}{16} \right) + \lg 12 - 2$$

- (iv) Simplify using the logarithms table and give the answer to the nearest second decimal.

$$\frac{\sqrt{0.835} \times 0.75^2}{4.561}$$

3. (a) The side CD of the parallelogram $ABCD$ in the figure has been produced to X . The line drawn through C parallel to AX , meets the side AD produced at Y .



- (i) Name a triangle which is equal in area to the triangle AXY . Give reasons for your answer.
- (ii) Prove that the area of the triangle XDY is half the area of the parallelogram $ABCD$.

- (b) By using only a pair of compasses and a straight edge with a cm/mm scale,
- (i) construct the triangle ABC such that $AB = 5.5$ cm, $\hat{ABC} = 60^\circ$ and $BC = 4.2$ cm.
 - (ii) construct the rhombus $ABPQ$ of area twice that of the area of triangle ABC .
4. O is any point on the side BC of the parallelogram $ABCD$. The line drawn through A parallel to DO meets CB produced at P . AO produced meets DC produced at Q .
- (i) Based on the above information, sketch a figure and include the given data.
 - (ii) Write down the relationship between the area of the parallelogram $ABCD$ and the area of the triangle ADO .
 - (iii) Prove that the area of triangle ABP is equal to the area of triangle BOQ .
5. The base radius and perpendicular height of a solid right circular cone are respectively 7 cm and 12 cm.
- (i) Find the volume of the cone.
 - (ii) If the base radius of the cone is kept fixed and the perpendicular height is doubled, how many times more would the volume of the new cone be than that of the original cone?
 - (iii) If the perpendicular height is kept fixed and the base radius is doubled, how many times more would the volume of the new cone be than that of the original cone?