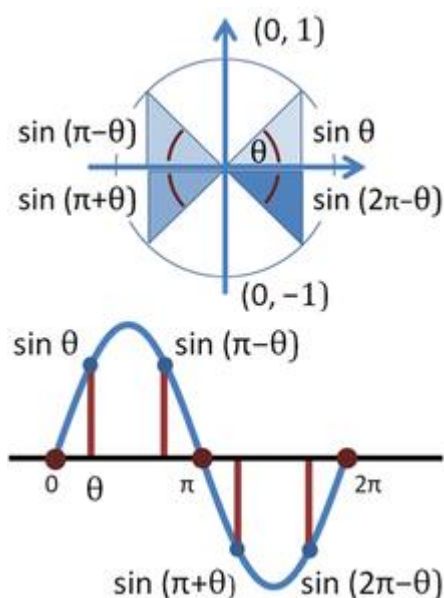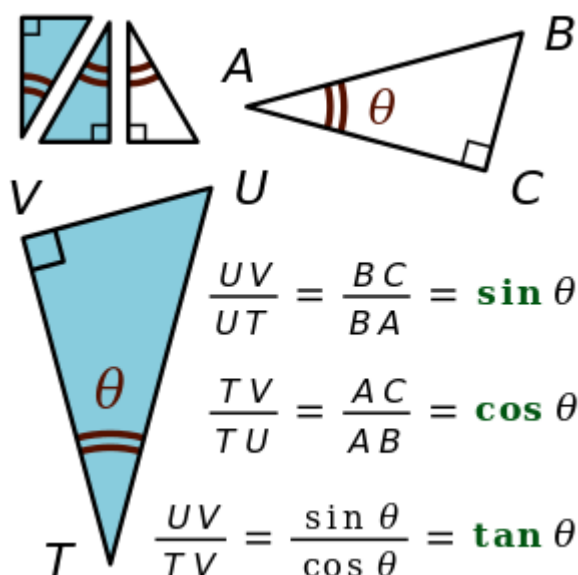# 1. Factorisation

1. $4x^2y - x^2y^3$;
2. $x^2yz + xy^2 + xy$;
3. $x^6 + y^6$;
4. $a^2bx + ab^2y + ax + by$;
5. $ax^4 - ay^4$;
6. $a^2x + 2ax + x + a^2y^2 + 2ay^2 + y^2$;
7. $ax^3 - by^3 + bx^3 - ay^3$;
8. $x^3y + 2x^2y + 2xy + y$;
9. $x^2y^2z^2 + 4x^2y^2z + 3x^2y^2$;
10. $xyz^2 + 10xyz + 25xy$.

11. $x^3y^6 - 64$

12. $2x^3 + 6x^2y + 6xy^2 + 2y^3$

13. $x^2 + 5x + 6$

14. $4a^2 + 16a + 8a + 4 + b^2 + 4b$

15. $x^2 + 3x - 4$

2. Trigonometry

- sin 30, cos 30 … 45 60 90 180, 270..

$$\frac{UV}{UT} = \frac{BC}{BA} = \sin \theta$$

$$\frac{TV}{TU} = \frac{AC}{AB} = \cos \theta$$

$$\frac{UV}{TV} = \frac{\sin \theta}{\cos \theta} = \tan \theta$$

3. Sample questions

2. [Maximum mark: 4]

At a skiing competition the mean time of the first three skiers is 34.1 seconds. The time for the fourth skier is then recorded and the mean time of the first four skiers is 35.0 seconds. Find the time achieved by the fourth skier.

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