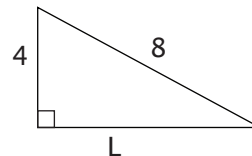


28. $\sqrt{-8} + \sqrt{-4} =$
 $\sqrt{4}\sqrt{-1}\sqrt{2} + \sqrt{4}\sqrt{-1} = 2i\sqrt{2} + 2i$
29. $(4\sqrt{-5})(2\sqrt{-6}) = (4)(2)\sqrt{-1}\sqrt{5}\sqrt{-1}\sqrt{6} =$
 $8(-1)\sqrt{30} = -8\sqrt{30}$
30. $(i^3)^2 = i^6 = i \cdot i \cdot i \cdot i \cdot i \cdot i = (-1)^3 = -1$
31. $\frac{X}{8+2i} = \frac{X(8-2i)}{(8+2i)(8-2i)} = \frac{8X-2Xi}{64-(2i)^2} =$
 $\frac{8X-2Xi}{64-4(-1)} = \frac{8X-2Xi}{64+4} = \frac{8X-2Xi}{68} =$
 $\frac{4X-Xi}{34}$
32. $\frac{2}{1+\sqrt{2}} = \frac{2(1-\sqrt{2})}{(1+\sqrt{2})(1-\sqrt{2})} = \frac{2-2\sqrt{2}}{1-2} =$
 $\frac{2-2\sqrt{2}}{-1} = -2+2\sqrt{2}$
33. $\frac{5 \cdot 4}{1 \cdot 2} X^3 Y^2 = 10X^3 Y^2$
34. $\frac{4}{1} A^3 B^1 = 4A^3 B$
35. $\frac{6 \cdot 5 \cdot 4}{1 \cdot 2 \cdot 3} D^3 \left(-\frac{1}{2}\right)^3 = 20D^3 \left(-\frac{1}{8}\right) =$
 $-\frac{20}{8} D^3 = -\frac{5}{2} D^3$

Test 11

1. D: $\left(\frac{1}{2}\right)(16) = 8; 8^2 = 64$
2. A: $\left(\frac{1}{2}\right)(-7) = -\frac{7}{2}; \left(-\frac{7}{2}\right)^2 = \frac{49}{4}$
3. A: $\left(\frac{1}{2}\right)\left(\frac{3}{4}\right) = \frac{3}{8}; \left(\frac{3}{8}\right)^2 = \frac{9}{64}$
4. B: $\sqrt{81} = 9; 9(2) = 18;$
middle term is $18X$
5. C: $\sqrt{144} = 12; 12(2) = 24;$
middle term is $24X$
6. A: $\sqrt{\frac{16}{25}} = \frac{4}{5}; \frac{4}{5}(2) = \frac{8}{5};$
middle term is $\frac{8}{5}X$
7. D: $X^2 - 14X + 49 = (X-7)(X-7)$

8. B: $X^2 + 8X = 4$
 $X^2 + 8X + 16 = 4 + 16$
 $X^2 + 8X + 16 = 20$
 $(X+4)^2 = 20$
 $X+4 = \pm\sqrt{20}$
 $X+4 = \pm 2\sqrt{5}$
 $X = -4 \pm 2\sqrt{5}$
9. D: $X^2 - 10X = -3$
 $X^2 - 10X + 25 = -3 + 25$
 $(X-5)^2 = 22$
 $X-5 = \pm\sqrt{22}$
 $X = 5 \pm \sqrt{22}$
10. C: $X^2 + 4X = -8$
 $X^2 + 4X + 4 = -8 + 4$
 $(X+2)^2 = -4$
 $X+2 = \pm\sqrt{-4}$
 $X+2 = \pm 2i$
 $X = -2 \pm 2i$
11. D: $4^2 + L^2 = 8^2$
 $16 + L^2 = 64$
 $L^2 = 48$
 $L = \sqrt{48}$
 $L = \sqrt{16} \sqrt{3}$
 $L = 4\sqrt{3}$



12. A: 1 litre = 100 centilitres (cl) or
100 cubic centimetres (cc)
 $12 \times 100 = 1200$ cc
13. B: by definition
14. C: The sum of the measures of the interior angles of a triangle is 180° .
15. B: by definition

Test 12

1. B: A, C, and D are equations whose highest exponent is 2. The quadratic equation works for equations of this nature only.
2. B: $\frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$

2. B: $\frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$
3. C: All quadratic equations have constants A, B, and C, which can be substituted into the quadratic formula. Not every quadratic equation can be factorised.
4. C: Standard equation provides A, B, and C with the proper sign.
5. A: $7X^2 + 2X - 1 = 0$
A = 7; B = 2; C = -1

6. A: $X^2 - 36 = 0$
 $(X - 6)(X + 6) = 0$
 $X - 6 = 0 \quad X + 6 = 0$
 $X = 6 \quad X = -6$

7. D: $X^2 + 3X + 3 = 0$
A = 1; B = 3; C = 3

$$X = \frac{-(3) \pm \sqrt{(3)^2 - 4(1)(3)}}{2(1)} =$$

$$\frac{-3 \pm \sqrt{9 - 12}}{2} = \frac{-3 \pm \sqrt{-3}}{2} = \frac{-3 \pm i\sqrt{3}}{2}$$

8. B: $5X^2 + 2X - 1 = 0$
A = 5; B = 2; C = -1

$$X = \frac{-(2) \pm \sqrt{(2)^2 - 4(5)(-1)}}{2(5)} =$$

$$\frac{-2 \pm \sqrt{4 - (-20)}}{10} = \frac{-2 \pm \sqrt{4 + 20}}{10} =$$

$$\frac{-2 \pm \sqrt{24}}{10} = \frac{-2 \pm \sqrt{4} \sqrt{6}}{10} =$$

$$\frac{-2 \pm 2\sqrt{6}}{10} = \frac{-1 \pm \sqrt{6}}{5}$$

9. D: $4X^2 + 20X + 25 = 0$
 $(2X + 5)(2X + 5) = 0$
 $2X + 5 = 0$
 $2X = -5$
 $X = -\frac{5}{2}$

10. C: $4X^2 + 4X - 10 = 0$
A = 4; B = 4; C = -10

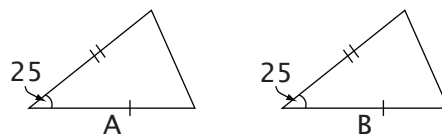
$$X = \frac{-(4) \pm \sqrt{(4)^2 - 4(4)(-10)}}{2(4)} =$$

$$\frac{-4 \pm \sqrt{16 - (-160)}}{8} = \frac{-4 \pm \sqrt{16 + 160}}{8} =$$

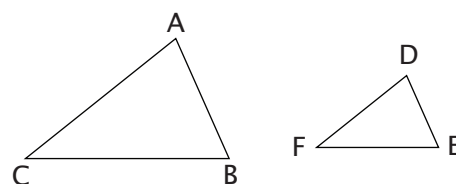
$$\frac{-4 \pm \sqrt{176}}{8} = \frac{-4 \pm \sqrt{16} \sqrt{11}}{8} =$$

$$\frac{-4 \pm 4\sqrt{11}}{8} = \frac{-1 \pm \sqrt{11}}{2}$$

11. C: $\overline{ED}$
12. B: A rhombus and a parallelogram have 2 pairs of parallel sides. A regular polygon may have any number of sides.
13. C: SAS stands for side angle side.



14. D: Knowing that the angles of one triangle are the same as the angles of another triangle proves similarity, not congruence.



15. A: 5 m = 500 cm = 5000 mm = 0,005 km

Test 13

1. B: real, rational, equal
2. A: real, rational, unequal
3. D: imaginary
4. C: real, irrational, unequal
5. C: $X^2 + X = X + 9$
 $X^2 - 9 = 0$
A = 1; B = 0; C = -9
 $B^2 - 4AC \Rightarrow (0)^2 - 4(1)(-9) =$
 $0 - (-36) =$
 $0 + 36 = 36$
6. D: $X^2 + 5 = 2X$
 $X^2 - 2X + 5 = 0$
A = 1; B = -2; C = 5
 $B^2 - 4AC \Rightarrow (-2)^2 - 4(1)(5) =$
 $4 - 20 = -16$
7. B: $X^2 + 9 = -6X$
 $X^2 + 6X + 9 = 0$
A = 1; B = 6; C = 9
 $B^2 - 4AC \Rightarrow (6)^2 - 4(1)(9) =$
 $36 - 36 = 0$