

Question 20

$$7n^2 - 9n + 2 = 0$$

Quadratic Equation Formula: $ax^2 + bx + c = 0$ solutions are $x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

For $a=7$, $b=-9$, $c=2$ therefore $n_{1,2} = \frac{-(-9) \pm \sqrt{(-9)^2 - 4 \times 7 \times 2}}{2 \times 7}$

$$n = \frac{-(-9) \pm \sqrt{(-9)^2 - 4 \times 7 \times 2}}{2 \times 7} : 1$$

$$\frac{(-9) \pm \sqrt{(-9)^2 - 4 \times 7 \times 2}}{2 \times 7}$$

Apply rule $-(-a) = a$

$$9 \pm \frac{\sqrt{(-9)^2 - 4 \times 7 \times 2}}{2 \times 7}$$

$$9 \pm \sqrt{(-9)^2 - 4 \times 7 \times 2} = 9 \pm \sqrt{25}$$

$$9 \pm \sqrt{(-9)^2 - 4 \times 7 \times 2}$$

$$\sqrt{(-9)^2 - 4 \times 7 \times 2} = \sqrt{25}$$

$$\sqrt{(-9)^2 - 4 \times 7 \times 2}$$

$$(9)^2 = 81$$

$$(-9)^2$$

Apply exponent rule: $(-a)^n = a^n$, if (n) is even

$$(-9)^2 = 9^2$$

$$9^2 = 81$$

$$4 \times 7 \times 2 = 56$$

$$= \sqrt{81 - 56}$$

$$= \sqrt{25}$$

$$= 9 \pm \sqrt{25}$$

$$= \sqrt{9 \pm \sqrt{25}}$$

$$14$$

$$\sqrt{25} = 5$$

Factor the number: $25 = 5^2$

$$= \sqrt{5^2}$$