

# Geometry (Reg + Hon)

A.

$$1. \begin{aligned} 3x+8 &= 7x-16 \\ 24 &= 4x \\ \boxed{6} &= x \end{aligned}$$

$$2. \begin{aligned} 2x-25 &= 7x \\ -25 &= 5x \\ \boxed{-5} &= x \end{aligned}$$

$$3. \begin{aligned} -4(3-x) &= 2(x+6) \\ -12+4x &= 2x+12 \\ 2x &= 24 \\ \boxed{x} &= \boxed{12} \end{aligned}$$

$$4. \begin{aligned} 3x-5(x+6) &= 0 \\ 3x-5x-30 &= 0 \\ -2x &= 30 \\ \boxed{x} &= \boxed{-15} \end{aligned}$$

$$5. \begin{aligned} 6x+7-2x+4 &= 2x+6 \\ 4x+11 &= 2x+6 \\ 2x &= -5 \\ \boxed{x} &= \boxed{-\frac{5}{2} \text{ or } -2.5} \end{aligned}$$

$$6. \begin{aligned} \frac{x}{5} &= \frac{12}{25} \\ 25x &= 60 \\ \boxed{x} &= \boxed{\frac{60}{25} = \frac{12}{5} \text{ or } 2.4} \end{aligned}$$

$$7. \begin{aligned} \frac{6}{x+3} &= \frac{4}{3x-7} \\ 4x+12 &= 18x-42 \\ 54 &= 14x \\ \boxed{\frac{27}{7}} &= x \end{aligned}$$

$$8. \begin{aligned} \frac{x+1}{3} &= \frac{x}{5} \\ 5x+5 &= 3x \\ 2x &= -5 \\ \boxed{x} &= \boxed{-\frac{5}{2} \text{ or } -2.5} \end{aligned}$$

B.

$$1. \begin{aligned} 3x(2x-5) \\ 6x^2-15x \quad \checkmark \end{aligned}$$

$$2. \begin{aligned} (x-9)(x+8) \\ x^2-x-72 \quad \checkmark \end{aligned}$$

$$3. \begin{aligned} (x+16)(x+4) \\ x^2+20x+64 \quad \checkmark \end{aligned}$$

$$4. \begin{aligned} (2x-1)(x+5) \\ 2x^2+9x-5 \quad \checkmark \end{aligned}$$

$$5. \begin{aligned} (x-7)^2 \\ x^2-14x+49 \quad \checkmark \end{aligned}$$

C.

$$1. \begin{aligned} C &= 2\pi r = 18\pi \text{ cm} \quad \checkmark \\ A &= \pi r^2 = 81\pi \text{ cm}^2 \quad \checkmark \end{aligned}$$

$$2. \begin{aligned} 22\pi &= 2\pi r \\ 11_{\text{cm}} &= r \quad \checkmark \\ A &= \pi(11)^2 = 121\pi \text{ cm}^2 \quad \checkmark \end{aligned}$$

D.

$$1. x^2-25 = (x+5)(x-5) \quad \checkmark$$

$$2. x^2-9x+14 = (x-7)(x-2) \quad \checkmark$$

$$3. x^2-2x-15 = (x-5)(x+3) \quad \checkmark$$

$$4. x^2+10x+24 = (x+6)(x+4) \quad \checkmark$$

$$5. 2x^2+10x = 2x(x+5) \quad \checkmark$$

$$6. 6x^2-15x = 3x(2x-5) \quad \checkmark$$

E.

$$1. \begin{aligned} x^2+3x-28 &= 0 \\ (x+7)(x-4) &= 0 \\ x &= -7, 4 \quad \checkmark \end{aligned}$$

$$2. \begin{aligned} x^2-49 &= 0 \\ (x+7)(x-7) &= 0 \\ x &= \pm 7 \quad \checkmark \end{aligned}$$

(E) (cont'd)

$$3. x^2 - 16x + 64 = 0$$
$$(x-8)^2 = 0$$
$$x = 8 \checkmark$$

$$4. x^2 + 4 = 2x + 7$$
$$x^2 - 2x - 3 = 0$$
$$(x-3)(x+1) = 0$$
$$x = 3, -1 \checkmark$$

$$5. x^2 = 6x - 8$$
$$x^2 - 6x + 8 = 0$$
$$(x-4)(x-2) = 0$$
$$x = 4, 2 \checkmark$$

(F)

$$1. x^2 + 3x - 5 = 0$$

$$x = \frac{-3 \pm \sqrt{9 - 4(-5)}}{2}$$

$$x = \frac{-3 \pm \sqrt{29}}{2} \checkmark$$

$$2. x^2 - 5x + 2 = 0$$

$$x = \frac{5 \pm \sqrt{25 - 4(2)}}{2}$$

$$x = \frac{5 \pm \sqrt{17}}{2} \checkmark$$

(G)

$$1. P = 46 \text{ cm} \checkmark$$
$$A = 120 \text{ cm}^2 \checkmark$$

$$2. P = 28 \text{ cm} \checkmark$$
$$A = 49 \text{ cm}^2 \checkmark$$

$$3. P = 28.77 \text{ cm} \checkmark$$
$$A = \frac{4 \cdot 13.77}{2} = 27.54 \text{ cm}^2 \checkmark$$