

# SURDS

## AS Unit 1: Pure Mathematics A

### WJEC past paper questions: 2010 – 2017

Total marks available 89 (approximately 1 hours 45 minutes)

1. Simplify

a)  $\frac{2\sqrt{11}-3}{\sqrt{11}+2}$  (4)

b)  $\frac{22}{\sqrt{2}} - \sqrt{50} - (\sqrt{2})^5$  (4)

(January 10)

2. Simplify

a)  $\frac{5\sqrt{7}-\sqrt{3}}{\sqrt{7}-\sqrt{3}}$  (4)

b)  $(\sqrt{15} \times \sqrt{20}) - \sqrt{75} - \frac{\sqrt{60}}{\sqrt{5}}$  (4)

(Summer 10)

3. Simplify  $\frac{\sqrt{2}}{10-7\sqrt{2}}$

(4)

(January 11)

4. Simplify

a)  $\frac{9}{\sqrt{3}-1} + \frac{7}{\sqrt{3}+1}$  (4)

b)  $\frac{90}{\sqrt{3}} - \sqrt{6} \times \sqrt{8} - (2\sqrt{3})^3$  (4)

(Summer 11)

5. Simplify

a)  $\frac{9+4\sqrt{2}}{5+3\sqrt{2}}$  (4)

b)  $(\sqrt{8} \times \sqrt{10}) + \frac{\sqrt{90}}{\sqrt{2}} - \frac{30}{\sqrt{5}}$  (4)

(January 12)

6. Simplify

a)  $\frac{10}{7+2\sqrt{11}}$  (3)

b)  $(4\sqrt{3})^2 - (\sqrt{8} \times \sqrt{50}) - \frac{5\sqrt{63}}{\sqrt{7}}$  (4)

(Summer 12)

7. Simplify

a)  $\frac{6\sqrt{7}-11\sqrt{2}}{\sqrt{7}-\sqrt{2}}$  (4)

b)  $\frac{3}{2\sqrt{6}} + \left(\frac{\sqrt{6}}{2}\right)^3$  (3)

(January 13)

8. Simplify

a)  $\frac{2+5\sqrt{7}}{4+\sqrt{7}}$  (4)

b)  $\sqrt{360} - \sqrt{2} \times (\sqrt{5})^3 - \frac{\sqrt{30} \times \sqrt{8}}{\sqrt{6}}$  (4)

(Summer 13)

9. Simplify  $\frac{3\sqrt{3}-2\sqrt{5}}{2\sqrt{3}+\sqrt{5}}$

(4)

(January 14)

10. Simplify

a)  $\frac{3\sqrt{3}+1}{5\sqrt{3}-7}$  (4)

b)  $(\sqrt{12} \times \sqrt{24}) + \frac{\sqrt{150}}{\sqrt{3}} - \frac{36}{\sqrt{2}}$  (4)

(Summer 14)

11. Simplify

a)  $\frac{4\sqrt{2}-\sqrt{11}}{3\sqrt{2}+\sqrt{11}}$  (4)

b)  $\frac{7}{2\sqrt{14}} + \left(\frac{\sqrt{14}}{2}\right)^3$  (3)

(Summer 15)

12. Simplify  $\frac{5\sqrt{7}+4\sqrt{2}}{3\sqrt{7}+5\sqrt{2}}$

(4)

(Summer 16)

13. Simplify

a)  $\frac{5\sqrt{5}-9}{3+2\sqrt{5}}$  (4)

b)  $(2\sqrt{13})^2 - (3\sqrt{7} \times \sqrt{28}) - \frac{5\sqrt{99}}{\sqrt{11}}$  (4)

(Summer 17)