Section 1: Surds

Section test

Do not use a calculator for this test.

1) Which of the following is a rational number?

(a) π (b) $\sqrt{48}$

(c) $\sqrt{3}$ (d) $\sqrt{36}$

2) Write $\sqrt{540}$ in terms of the simplest possible surd.

3) Which of the following is a correct simplification of $\sqrt{2}+1-2\sqrt{3}+4\sqrt{2}-3$

(a) $3\sqrt{2}-2$ (b) $5\sqrt{2}-2\sqrt{3}-2$

(c) $3\sqrt{7}-2$ (d) $\sqrt{7}$

4) Simplify $\sqrt{75}-\sqrt{27}$

5) Simplify $\sqrt{12}\times\sqrt{8}\times\sqrt{98}$

6) Multiply out $\left(2-\sqrt{3}\right)\left(1+2\sqrt{3}\right)$ and simplify as far as possible

7) Which of the following expression are equal to $\frac{\sqrt{20}}{\sqrt{5}+1}$? Choose as many as apply.

(a) $\frac{4\sqrt{5}}{\sqrt{5}+1}$ (b) $\frac{5+\sqrt{5}}{2}$

(c) $\frac{5-\sqrt{5}}{2}$ (d) $\frac{10}{5+\sqrt{5}}$

8) Write $\frac{2}{3\sqrt{2}}$ in the form $\frac{a}{b}\sqrt{2}$.

9) Write $\frac{1}{\sqrt{5}-2}$ in the form $\frac{a\sqrt{5}+b}{c}$

10) The expression $\frac{2+\sqrt{3}}{1+\sqrt{2}}$ is equivalent to

(a) 5 (b) $2\sqrt{2}+\sqrt{6}-\sqrt{3}-2$

(c) $2+\sqrt{3}-2\sqrt{2}-\sqrt{6}$ (d) $\frac{2+\sqrt{3}}{5}$

