Master Maths 9 Worksheet 14
Surds

14

Name: _____

1. ***Circle*** the ***rational*** numbers in this list.

5 -7.1 π $\sqrt{16}$ $\sqrt{18}$ $\frac{3}{5}$

2. ***Without using a calculator*** find the following.

(a) $\sqrt{25}$ (b) $\sqrt{81}$ (c) $\sqrt{169}$ (d) $\sqrt{\frac{49}{64}}$

3. (a) ***Guess*** the value of the following square roots to one decimal place.
(b) Use a calculator to find the correct values to one decimal place.

(i) $\sqrt{40}$ (ii) $\sqrt{7}$ (iii) $\sqrt{82}$ (iv) $\sqrt{98}$

Guess				
Actual value				

4. Find the following square roots.

(a) $\sqrt{36 \times 25}$ (b) $\sqrt{16 \times 81}$ (c) $\sqrt{6400}$

5. Simplify the following surds.

(a) $\sqrt{8}$ (b) $\sqrt{18}$ (c) $\sqrt{28}$ (d) $\sqrt{72}$

(e) $\sqrt{160}$ (f) $3\sqrt{125}$ (g) $5\sqrt{48}$

6. Write the following as entire surds.

(a) $2\sqrt{5}$ (b) $3\sqrt{10}$ (c) $4\sqrt{3}$ (d) $5\sqrt{6}$

7. Simplify the following

(a) $\sqrt{7} \times \sqrt{10}$ (b) $3\sqrt{5} \times 2\sqrt{6}$

8. Simplify each surd before multiplying.

(a) $5\sqrt{18} \times 3\sqrt{20}$ (b) $2\sqrt{50} \times 2\sqrt{32}$

9. Simplify the following expressions.

(a) $\frac{\sqrt{60}}{\sqrt{10}}$ (b) $\frac{3\sqrt{88}}{2\sqrt{32}}$ (c) $\frac{5\sqrt{72}}{3\sqrt{48}}$

10. Simplify the following expressions.

(a) $5\sqrt{2} + 6\sqrt{2}$ (b) $10\sqrt{3} - 7\sqrt{3}$

(c) $\sqrt{7} + \sqrt{7}$ (d) $5\sqrt{11} - \sqrt{11}$

(e) $3\sqrt{2} + 5\sqrt{2} - 2\sqrt{2}$ (f) $6\sqrt{3} - 2\sqrt{3} + 5\sqrt{3}$

(g) $2\sqrt{3} + \sqrt{5} + 3\sqrt{3}$ (h) $3\sqrt{7} + 4\sqrt{7} + 3\sqrt{5}$