

EXERCISE 2 - Reductions

1) Simplify:

1.1) $\sin(180^\circ + \theta)$

1.2) $\tan(360^\circ - \theta)$

1.3) $\tan(180^\circ + \theta)$

1.4) $\cos(360^\circ - \theta)$

1.5) $\tan(360^\circ + \theta)$

1.6) $\cos(180^\circ - \theta)$

1.7) $\sin(360^\circ + \theta)$

1.8) $\cos(360^\circ + \theta)$

2) Rewrite the following ratios as a ratio with an acute angle:

2.1) $\sin 122^\circ$

2.2) $\cos 156^\circ$

2.3) $\tan 133^\circ$

2.4) $\sin 166^\circ$

2.5) $\tan 145^\circ$

2.6) $\cos 99^\circ$

2.7) $\sin 245^\circ$

2.8) $\cos 225^\circ$

2.9) $\tan 191^\circ$

2.10) $\tan 209^\circ$

2.11) $\cos 230^\circ$

2.12) $\sin 216^\circ$

2.13) $\cos 350^\circ$

2.14) $\cos 300^\circ$

2.15) $\tan 288^\circ$

2.16) $\sin 302^\circ$

2.17) $\sin 295^\circ$

2.18) $\tan 322^\circ$

3) Simplify:

3.1)
$$\frac{\cos(180^\circ + x) \cdot \tan(180^\circ - x) \cdot \sin(180^\circ + x)}{\sin(180^\circ - x) \cdot \sin x}$$

3.2)
$$\frac{2 \sin(180^\circ - x) \cdot \cos(360^\circ - x)}{\sin(180^\circ + x) \cdot \cos(180^\circ - x)}$$

4) Determine the value of the following expressions without using a calculator (where necessary, leave your answer in surd form).

4.1)
$$\frac{\cos 150^\circ \cdot \sin 330^\circ}{\tan 225^\circ \cdot \sin 300^\circ}$$

4.2)
$$\frac{\sin 390^\circ \cdot \cos 225^\circ \cdot \sin 210^\circ \cdot \sin 315^\circ \cdot \sin 270^\circ}{\cos 360^\circ}$$