1. Which of the following are true?

a) The value of $\sin C$ is always less than 1
b) The value of $\tan C$ is always less than 1
c) $\cos C$ is the abbrieviation for $\operatorname{cosec} C$
d) If $\sin C = 0$, then $\cos C = 1$ or $\cos C = -1$
e) The value of $\cot C$ is always less than 1

(i) {b,a} (ii) {c,d,a} (iii) {c,d} (iv) {e,b,a} (v) {a,d}

2. For angle values from 0° to 90°, which of the following are true?

a) The tangent value of the angle increases
b) The product of the sine and cosine values remains a constant
c) The cosine value of the angle increases
d) The sine value of the angle increases
e) The cotangent value of the angle increases
f) The sum of the squares of the sine and cosine values remains a constant

(i) {a,d,f} (ii) {c,a,d} (iii) {e,b,f} (iv) {b,a} (v) {c,d}

3. Which of the following are true?

a) $\cos(D + E) = \cos D + \cos E$
b) The cotangent of an angle is the reciprocal of the tangent of the angle.
c) $\tan D = \tan \times D$
d) The cosine value of an angle is the reciprocal of the sine of the angle.
e) $\sin(D + E) = \sin D + \sin E$
f) The cosecant of an angle is the reciprocal of the secant of the angle

(i) {a,b} (ii) {c,b} (iii) {f,b} (iv) {d,e,b} (v) {b}

4. Which of the following are true?

a) The value of $\cos\theta$ increases as θ increases from $0°$ to $90°$
b) The value of $\sin\theta$ increases as θ increases from $0°$ to $90°$
c) $\sin(A + B) = \sin A + \sin B$
d) $\tan\theta = \cot\theta$ for no value of θ
e) $\tan(A + B) = \tan A + \tan B$
f) $\sin\theta = \cos\theta$ for all θ
g) $\cos(A + B) = \cos A + \cos B$

(i) {f,b} (ii) {a,b} (iii) {c,b} (iv) {b} (v) {d,e,b}

5. Which of the following are true?

a) $\sin 2A = 2\sin^2 A \cos^2 A$

b) $\cos 2A = \cos^2 A - \sin^2 A$

c) $\tan 2A = \dfrac{2\tan A}{1 + \tan^2 A}$

d) $\sin 2A = 2\sin A \cos A$

e) $\cos 2A = \cos^2 A + \sin^2 A$

f) $\tan 2A = \dfrac{2\tan A}{1 - \tan^2 A}$

(i) {c,d} (ii) {b,d,f} (iii) {e,a,f} (iv) {a,b} (v) {c,b,d}

6. Which of the following are true?

a) $\sin 40° = 2\sin^2 20° \cos^2 20°$

b) $\sin 40° = 2\sin 20° \cos 20°$

c) $\tan 40° = \dfrac{2\tan 20°}{1 - \tan^2 20°}$

d) $\cos 40° = \cos^2 20° + \sin^2 20°$

e) $\cos 40° = \cos^2 20° - \sin^2 20°$

f) $\tan 40° = \dfrac{2\tan 20°}{1 + \tan^2 20°}$

(i) {b,c,e} (ii) {a,b} (iii) {d,b,c} (iv) {f,a,e} (v) {d,c}

7. Which of the following are true?

a) $(\sec\theta - \tan\theta)^2 = \dfrac{1 - \sin\theta}{1 + \sin\theta}$

b) $(\sec\theta - \tan\theta)^2 = \dfrac{1 + \sin\theta}{1 - \sin\theta}$

c) $\dfrac{1 + \sin\theta}{\cos\theta} + \dfrac{\cos\theta}{1 + \sin\theta} = 2\sec\theta$

d) $\dfrac{\cos\theta}{1 - \sin\theta} + \dfrac{\cos\theta}{1 + \sin\theta} = 2$

e) $\dfrac{\cos\theta}{\operatorname{cosec}\theta + 1} + \dfrac{\cos\theta}{\operatorname{cosec}\theta - 1} = 2\tan\theta$

(i) {b,d,e} (ii) {a,c,e} (iii) {d,c} (iv) {b,a} (v) {b,a,c}

8. Which of the following are true?

a) $\cos^3\theta - \sin^3\theta = (\sin\theta + \cos\theta)(1 - \sin\theta\cos\theta)$

b) $\cos^3\theta + \sin^3\theta = (\sin\theta + \cos\theta)(1 - \sin\theta\cos\theta)$

c) $(\sin\theta + \cos\theta)^2 + (\sin\theta - \cos\theta)^2 = 2$

d) $\dfrac{\cos\theta}{1 + \sin\theta} = \dfrac{1 - \sin\theta}{\cos\theta}$

e) $\dfrac{\sec\theta}{1 + \operatorname{cosec}\theta} = \dfrac{1 - \operatorname{cosec}\theta}{\sec\theta}$

f) $(\sin\theta + \cos\theta)^2 = 1 + \sin 2\theta$

g) $(\sin\theta - \cos\theta)^2 = 1 + \sin 2\theta$

(i) {e,f,b} (ii) {e,c} (iii) {a,b} (iv) {b,c,d,f} (v) {g,a,d}

9. If U, V and W are the interior angles of a triangle, then $\sin(\dfrac{U + V}{2}) =$

(i) $\sin(\dfrac{W}{2})$ (ii) $\cos(\dfrac{W}{2})$ (iii) $\sin W$ (iv) $\cos(\dfrac{U}{2})$ (v) $\sin(\dfrac{U}{2})$

10. Which of the following are true?

a) $\tan 52° = \cot 38°$
b) $\sin 38° = \cos 38°$
c) $\sin 25° = \cos 65°$
d) $\sec 24° = \operatorname{cosec} 66°$
e) $\sin 29° = \cos 61°$
f) $\sin 51° = \cos 39°$
g) $\cos 27° = \sin 27°$

(i) {b,a} (ii) {g,c} (iii) {b,e,f} (iv) {b,g,d} (v) {a,c,d,e,f}

11. Which of the following are true?

a) $\operatorname{cosec} 0°$ is not defined
b) $\operatorname{cosec} 90°$ is not defined
c) $\sec 90°$ is not defined
d) $\tan 90°$ is not defined
e) $\cot 0°$ is not defined
f) $\cot 90°$ is not defined
g) $\sec 0°$ is not defined
h) $\tan 0°$ is not defined

(i) {b,a} (ii) {b,e,a} (iii) {g,h,d} (iv) {f,c} (v) {a,c,d,e}

12. Which of the following are true?

a) $\sec\theta = \frac{1}{\sin\theta}$

b) $\tan\theta = \frac{1}{\cot\theta}$

c) $\operatorname{cosec}\theta = \frac{1}{\sin\theta}$

d) $\sec\theta = \frac{1}{\cos\theta}$

e) $\cos\theta = \frac{1}{\operatorname{cosec}\theta}$

f) $\cot\theta = \frac{1}{\sec\theta}$

(i) {b,c,d} (ii) {e,b,c} (iii) {a,b} (iv) {e,c} (v) {f,a,d}

13. Which of the following are true?

a) $\sin 90° = 1$
b) $\cos 90° = 1$
c) $\sin 45° = 1$
d) $\tan 90° = 1$
e) $\cos 45° = 1$
f) $\sin 0° = 1$
g) $\tan 0° = 1$
h) $\cos 0° = 1$

(i) {b,a} (ii) {f,h,a} (iii) {a,h} (iv) {d,e,a} (v) {c,h}

14. Which of the following are true?

a) $\tan 0° = 0$
b) $\sin 0° = 0$
c) $\cos 0° = 0$
d) $\sin 45° = 0$
e) $\sin 90° = 0$
f) $\cos 45° = 0$
g) $\cos 90° = 0$
h) $\tan 90° = 0$

(i) {e,f,g} (ii) {d,b} (iii) {c,a} (iv) {a,b,g} (v) {h,a,b}

15. If $v = \cos\theta + \sin\theta$, $w = \cos\theta \sin\theta$ then

(i) $(v^2 + w^2) = 0$ (ii) $v^2 = (-2w + 1)$ (iii) $(v^2 - w^2) = 1$ (iv) $(v^2 + w^2) = 1$ (v) $v^2 = (2w + 1)$

16. If $x = \cos\theta + \sin\theta$, $y = \cos\theta - \sin\theta$ then

(i) $(x^2 + y^2) = 0$ (ii) $(x^2 + y^2) = 1$ (iii) $(x^2 + y^2) = 2$ (iv) $(x^2 - y^2) = 1$ (v) $(x^2 - y^2) = 2$

17.

a) $(v + w)^2 = b^2$
b) $2vw = b^2 \sin 2\theta$
c) $(v^2 + w^2) = b^2$
d) $(v^2 - w^2) = b^2$
e) $\frac{v^2}{w^2} = \tan^2\theta$

(i) {d,c} (ii) {a,b} (iii) {a,b,c} (iv) {b,c,e} (v) {a,d,e}

18. If $e = r\cos\theta + s\sin\theta$ and $f = r\sin\theta - s\cos\theta$, then

(i) $ef = rs$ (ii) $(r^2 + e^2) = (s^2 + f^2)$ (iii) $(e^2 + f^2) = (r^2 + s^2)$ (iv) $(e^2 - f^2) = (r^2 - s^2)$

Assignment Key

1) (v)	2) (i)	3) (v)	4) (iv)	5) (ii)	6) (i)
7) (ii)	8) (iv)	9) (ii)	10) (v)	11) (v)	12) (i)
13) (iii)	14) (iv)	15) (v)	16) (iii)	17) (iv)	18) (iii)