



1. Which of the following are true?

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

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

2. For angle values from  $0^\circ$  to  $90^\circ$ , which of the following are true?

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

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

3. Which of the following are true?

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

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

4. Which of the following are true?

- a)  $\sin \theta = \cos \theta$  for all  $\theta$
- b) The value of  $\sin \theta$  increases as  $\theta$  increases from  $0^\circ$  to  $90^\circ$
- c)  $\tan \theta = \cot \theta$  for no value of  $\theta$
- d)  $\tan(E + F) = \tan E + \tan F$
- e) The value of  $\cos \theta$  increases as  $\theta$  increases from  $0^\circ$  to  $90^\circ$
- f)  $\sin(E + F) = \sin E + \sin F$
- g)  $\cos(E + F) = \cos E + \cos F$

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

5. Which of the following are true?

a) 
$$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

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

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

d) 
$$\tan 2A = \frac{2 \tan A}{1 + \tan^2 A}$$

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

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

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

6. Which of the following are true?

a) 
$$\cos 64^\circ = \cos^2 32^\circ - \sin^2 32^\circ$$

b) 
$$\sin 64^\circ = 2 \sin^2 32^\circ \cos^2 32^\circ$$

c) 
$$\sin 64^\circ = 2 \sin 32^\circ \cos 32^\circ$$

d) 
$$\cos 64^\circ = \cos^2 32^\circ + \sin^2 32^\circ$$

e) 
$$\tan 64^\circ = \frac{2 \tan 32^\circ}{1 + \tan^2 32^\circ}$$

f) 
$$\tan 64^\circ = \frac{2 \tan 32^\circ}{1 - \tan^2 32^\circ}$$

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

7. Which of the following are true?

a) 
$$\frac{\cos\theta}{\operatorname{cosec}\theta + 1} + \frac{\cos\theta}{\operatorname{cosec}\theta - 1} = 2\tan\theta$$

b) 
$$\frac{\cos\theta}{1 - \sin\theta} + \frac{\cos\theta}{1 + \sin\theta} = 2$$

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

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

e) 
$$\frac{1 + \sin\theta}{\cos\theta} + \frac{\cos\theta}{1 + \sin\theta} = 2\sec\theta$$

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

8. Which of the following are true?

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

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

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

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

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

f) 
$$\frac{\sec\theta}{1 + \operatorname{cosec}\theta} = \frac{1 - \operatorname{cosec}\theta}{\sec\theta}$$

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

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

9. If P, Q and R are the interior angles of a triangle, then  $\sin\left(\frac{P+Q}{2}\right) =$

- (i)  $\sin\left(\frac{R}{2}\right)$  (ii)  $\sin\left(\frac{P}{2}\right)$  (iii)  $\cos\left(\frac{P}{2}\right)$  (iv)  $\sin R$  (v)  $\cos\left(\frac{R}{2}\right)$

10. Which of the following are true?

- a)  $\tan 21^\circ = \cot 69^\circ$
- b)  $\sec 53^\circ = \operatorname{cosec} 37^\circ$
- c)  $\sin 50^\circ = \cos 40^\circ$
- d)  $\cos 29^\circ = \sin 29^\circ$
- e)  $\sin 34^\circ = \cos 56^\circ$
- f)  $\sin 37^\circ = \cos 53^\circ$
- g)  $\sin 28^\circ = \cos 28^\circ$

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

11. Which of the following are true?

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

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

12. Which of the following are true?

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

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

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

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

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

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

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

13. Which of the following are true?

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

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

14. Which of the following are true?

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

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

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

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

16. If  $p = \cos \theta + \sin \theta$ ,  $q = \cos \theta - \sin \theta$  then

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

17.

- a)  $(p^2 + q^2) = b^2$
- b)  $2pq = b^2 \sin 2\theta$
- c)  $\frac{p^2}{q^2} = \tan^2 \theta$
- d)  $(p^2 - q^2) = b^2$
- e)  $(p + q)^2 = b^2$

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

18. If  $a = t \cos \theta + u \sin \theta$  and  $b = t \sin \theta - u \cos \theta$ , then

(i)  $(a^2 + b^2) = (t^2 + u^2)$  (ii)  $(a^2 - b^2) = (t^2 - u^2)$  (iii)  $ab = tu$  (iv)  $(t^2 + a^2) = (u^2 + b^2)$

## Assignment Key

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