EduSahara™ Assignment

Name : Trigonometry Miscellaneous

Chapter : Introduction to Trigonometry

Grade : CBSE Grade X



1. Which of the following are true?

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

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

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

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

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

3. Which of the following are true?

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

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

4. Which of the following are true?

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

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

5. Which of the following are true?

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

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

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

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

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

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

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

6. Which of the following are true?

a) $\cos 84° = \cos^2 42° + \sin^2 42°$

b) $\tan 84° = \dfrac{2\tan 42°}{1 + \tan^2 42°}$

c) $\tan 84° = \dfrac{2\tan 42°}{1 - \tan^2 42°}$

d) $\sin 84° = 2\sin^2 42° \cos^2 42°$

e) $\cos 84° = \cos^2 42° - \sin^2 42°$

f) $\sin 84° = 2\sin 42° \cos 42°$

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

7. Which of the following are true?

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

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

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

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

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

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

8. Which of the following are true?

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

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

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

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

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

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

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

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

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

(i) $\sin(\frac{T}{2})$ (ii) $\cos(\frac{R}{2})$ (iii) $\sin T$ (iv) $\sin(\frac{R}{2})$ (v) $\cos(\frac{T}{2})$

10. Which of the following are true?

a) $\tan 28° = \cot 62°$
b) $\sin 54° = \cos 36°$
c) $\sin 33° = \cos 57°$
d) $\cos 40° = \sin 40°$
e) $\sin 39° = \cos 51°$
f) $\sin 53° = \cos 53°$
g) $\sec 22° = \operatorname{cosec} 68°$

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

11. Which of the following are true?

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

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

12. Which of the following are true?

a) $\tan\theta = \dfrac{1}{\cot\theta}$

b) $\operatorname{cosec}\theta = \dfrac{1}{\sin\theta}$

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

d) $\cot\theta = \dfrac{1}{\sec\theta}$

e) $\sec\theta = \dfrac{1}{\sin\theta}$

f) $\sec\theta = \dfrac{1}{\cos\theta}$

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

13. Which of the following are true?

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

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

14. Which of the following are true?

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

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

15. If $s = \cos\theta + \sin\theta$, $t = \cos\theta \sin\theta$ then

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

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

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

17.

a) $(y^2 + z^2) = g^2$
b) $2yz = g^2 \sin 2\theta$
c) $(y + z)^2 = g^2$
d) $\frac{y^2}{z^2} = \tan^2\theta$
e) $(y^2 - z^2) = g^2$

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

18. If $g = w\cos\theta + x\sin\theta$ and $h = w\sin\theta - x\cos\theta$, then

(i) $gh = wx$ (ii) $(g^2 + h^2) = (w^2 + x^2)$ (iii) $(w^2 + g^2) = (x^2 + h^2)$ (iv) $(g^2 - h^2) = (w^2 - x^2)$

## Assignment Key

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