

Practise, Apply, Solve 5.2, page 422

1. (a) terminal arm in second quadrant; related acute angle 45°
 (b) terminal arm in third quadrant; related acute angle 30°
 (c) terminal arm in fourth quadrant; related acute angle 45°
 (d) terminal arm in fourth quadrant; related acute angle 30°
 (e) terminal arm in second quadrant; related acute angle 45°
 (f) terminal arm in first quadrant; related acute angle 30°
 (g) terminal arm in second quadrant; related acute angle 30°
 (h) terminal arm in third quadrant; related acute angle 60°
 (i) terminal arm in second quadrant; related acute angle 75°
 (j) terminal arm in third quadrant; related acute angle 17°
 (k) terminal arm in fourth quadrant; related acute angle 39°
 (l) terminal arm in first quadrant; related acute angle 80°
2. (a) 45° (b) 30° (c) 45° (d) 30°
 (e) 45° (f) 30° (g) 30° (h) 60°
 (i) 75° (j) 17° (k) 39° (l) 80°
3. (a) terminal arm in first quadrant; 360° counterclockwise + 19° related acute angle
 (b) terminal arm in second quadrant; 450° counterclockwise, + 41° related acute angle of 49°
 (c) terminal arm in second quadrant; 540° clockwise + 5° related acute angle
 (d) terminal arm in first quadrant; 630° clockwise + 10° related acute angle of 80°
 (e) terminal arm in third quadrant; 540° counterclockwise + 53° related acute angle
4. (a) yes (b) no (c) yes (d) yes (e) no
 (f) yes (g) no (h) yes (i) yes (j) no
5. (a) $492^\circ, 852^\circ$ (b) $635^\circ, 995^\circ$ (c) $665^\circ, 1025^\circ$
 (d) $433^\circ, 793^\circ$ (e) $630^\circ, 990^\circ$
6. (a) $-413^\circ, -773^\circ$ (b) $-498^\circ, -858^\circ$ (c) $-659^\circ, -1019^\circ$
 (d) $-540^\circ, -900^\circ$ (e) $-552^\circ, -912^\circ$
7. (a) vi (b) i (c) ii (d) v
 (e) iii (f) iv (g) viii (h) vii
8. (a) 173° (b) 50° (c) 293° (d) 185°
 (e) 78° (f) 350° (g) 135° (h) 191°
9. (a) 156° (b) 215° (c) 341° (d) 63°
10. (a) $1491^\circ, 1851^\circ, 2211^\circ$ (b) $-431^\circ, -71^\circ, 289^\circ, 649^\circ$
 (c) $-843^\circ, -483^\circ, -123^\circ$ (d) $1995^\circ, 2355^\circ, 2715^\circ$
11. (a) Plot point $(-9, 4)$ on coordinate grid: principal angle is angle between 0° and terminal arm of P
 (b) 24° (c) 156°
12. (a) Plot point $(7, -24)$ on coordinate grid: principal angle is angle between 0° and terminal arm of P .
 (b) 74° (c) 286°
13. (a) Plot point $(-5, -3)$ on coordinate grid: principal angle is angle between 0° and terminal arm of P .
 (b) 31° (c) 211° (d) -149°
14. The right triangle helps to determine what the related acute angle is. You can use the related acute angle as well as the knowledge about what quadrant the angle is situated in to determine the principal angle.
15. $-482^\circ, -122^\circ, 238^\circ,$