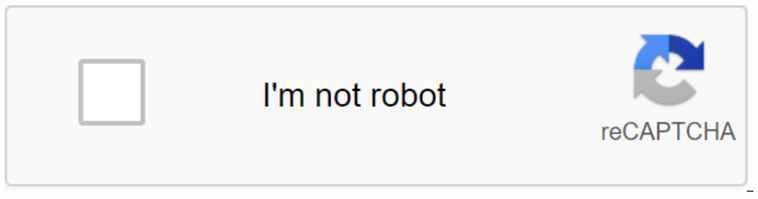

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Precalculus graphing trig functions worksheet answers

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It would be reflected across the line y =−1, y=−1, becoming an increasing function.3. g(x)=4tan(2x) g(x)=4tan(2x) 4. This is a vertical reflection of the previous graph because A A is negative. 5. 6. 7. 6.3 Inverse trigonometric functions1. arccos(0.8776)≈0.5 arccos(0.8776)≈0,5 2nd a. − π 2 − π 2 ; b. − π 4 − π 4 ; c. π π; d. π 3 π 3 4th sin −1 (0.6)=36.87°=0.6435 sin −1 (0.6)=36.87°=0.6435 radians9. 4x 16 x 2 +1 4x 16 x 2 +1 1. Sineus and cosine functions have the property of f(x+P)=f(x+P)=f(x) for a specific P. P. P. This means that the function values are repeated for each P P device on x-axis.3. The absolute value of the a .a (amplitude) constant increases the total range, and the constant D D (vertical shift) changes the graph vertically.5. At the point where the terminal side of the t cuts the unit circle, you can determine that sin is equal to the y-coordinate of the point.7. amplitude: 2 3 ; 2 3 ; period: 2π; 2π; center line: y=0; y=0; maximum: y= 2 3 y= 2 3 occurs at x=0; x=0; minimum: y=− 2 3 y=− 2 3 occurs at x=π; x=π; for a period, graphene begins at 0 and ends at 2π 2π 9. amplitude: 4; period: 2π; 2π; center line: y=0; y=0; maximum y=4 y=4 occurs at x= π 2 ; x= π 2 ; minimum: y=−4 y=−4 occurs at x= 3π 2; x = 3π 2 ; a whole period occurs from x=0 x=0 to x=2π x=2π 11. amplitude: 1; period: π π; center line: y=0; y=0; maximum: y=1 y=1 occurs at x=π; x=π; minimum: y=−1 y=−1 occurs at x= π 2; x= π 2 ; an entire period is graphed from x=0 x=0 to x=π x=π 13. amplitude: 4; period: 2; center line: y=0; y=0; y=4 y=4 occurs at x=0; x=0; minimum: y=−4 y=−4 occurs at x=1 x=1 15. amplitude: 3; period: π 4 π 4 ; center line: y=5; y=5; maximum: y=8 y=8 occurs at x=0,12; x=0.12; minimum: y=2 y=2 occurs at x=0.516; x=0.516; horizontal shift: −4; −4 vertical translation 5 a period occurs from x=0 x=0 to x= π 4 x= π 4 17. amplitude: 5; period: 2π 5 ; 2π 5 ; center line: y=−2; y=−2; maximum: y=3 y=3 occurs at x=0,08; x=0.08; minimum: y=−7 y=−7 occurs at x=0.71; x=0.71; phase change: −4; −4 vertical translation: −2; −2 for a whole period can be graphed on x=0 x=0 to x= 2π 5 x= 2π 5 19. amplitude: 1 ; period: 2π; 2π; center line: y=1; y=1; maximum: y=2 y=2 occurs at x=2,09; x=2.09; maximum: y=2 y=2 occurs at t=2,09; t=2.09; minimum: y=0 y=0 occurs at t=5,24; t=5.24; phase change: − π 3 − π 3 ; vertical translation: 1; an entire period is from t=0 t=0 to t=2π t=2π 21. amplitude: 1; period: 4π; 4π; center line: y=0; y=0; maximum: y=1 y=1 occurs at t=11,52; t=11.52; minimum: y=−1 y=−1 occurs at t=5,24; t=5.24; phase change: − 10π 3 − 10π 3 ; vertical shift: 0 23rd amplitude: 2; center line: y=−3; y=−3; period: 4; equation: f(x)=2sin(π 2 x)−3 f(x)=2sin(π 2 x)−3 25. amplitude: 2; period: 5; centerline: y=3; y=3; equation: f(x)=−2cos(2π 5 x)+3 f(x)=−2cos(2π 5 x)+3 27. amplitude: 4; period: 2; center line: y=0; y=0; equation: f(x)=−4cos(π(x− π 2)) f(x)=−4cos(π(x− π 2)) 29. amplitude: 2; period: 2; center line y=1; y=1; equation: f(x)=2cos(πx)+1 f(x)=2cos(πx)+1 37. f(x)=sinx f(x)=sinx is symmetrical41. Maximum: 1 1 at x= 0 x=0 ; minimum: -1 -1 at x= π x=π 43. A linear function is added to a periodic sine function. The graph does not have an amplitude, because as the linear function increases without bound the combined function h (x)=x +sinx h(x)=x+sinx will increase without bound as well. The graph is delimited between the graphs for y=x+1 y=x+1 and y=x-1 y=x-1 because its fluctuates between −1 and 1. 45. There is no amplitude because the function is not delimited. 47. Graphene is symmetrical for the y-axis and there is no amplitude because the limits of the function fall as |x| | x| Grows. There appears to be a horizontal asymptote at y=0 y=0 . 1. Since y = cscx y = cscx is the reciprocal function of y = sinx, y = sinx, you can plot the reciprocal of the coordinates on the graph for y = sinx y = sinx to obtain y-coordinates of y = cscx. y=cscx. X-intercepts of graphene y = sinx y = sinx are the vertical asymptotes for the graph for y = cscx. y=cscx. 3. Responses vary. Using the device circle, one can show that tan(x + π)= tanx. (x+π)=tanx. 5. The period shall be the same: 2π. 2π. 11. period: 8; horizontal shift: 1 unit left 17. −cotxcosx−sinx −cotxcosx−sinx 19. stretching factor: 2; period: π 4 π 4 ; asymptotes: x= 1 4 (π 2 +πk)+8, where k is an integer x= 1 4 (π 2 +πk 21. stretching factor: 6; period: 6; asymptotes: x=3k, where k is an integer x=3k, where k is an integer 23. stretching factor: 1; period: π π; asymptotes: x=πk, where k is an integer x=πk, where k is an integer 25. Stretching factor: 1; period: π π; asymptotes: x= π 4 +πk, where k is an integer x= π 4 +πk, where k is an integer 27. stretching factor: 2; period: 2π; 2π; asymptotes: x=πk, where k is an integer x=πk, where k is an integer 29. stretching factor: 4; period: 2π 3 ; 2π 3 ; asymptotes: x= π 6 k, where k is an odd integer x= π 6 k, where k is an odd integer 31. stretching factor: 7; period: 2π 5 ; 2π 5 ; asymptotes: x= π 10 k, where k is an odd integer x= π 10 k, where k is an odd integer 33. stretching factor: 2; period: 2π; 2π; asymptotes: x=− π 4 +πk, where k is an integer x=− π 4 +πk, where k is an integer 35. stretch factor: 7 5; 7 5 ; period: 2π; 2π; asymptotes: x= π 4 +πk, where k is an integer x= π 4 +πk, where k is an integer 37. y=tan(3(x− π 4))+2 y=tan(3(x− π 4))+2 39. f(x)=csc(2x) f(x)=csc(2x) 41. f(x)=csc(4x) f(x)=csc(4x) 43. f(x)=2cscx f(x)=2cscx 45. f(x)= 1 2 tan(100πx) f(x)= 1 2 tan(100πx) 47. 59. 51. 53. 55. (− π 2 , π 2); (− π 2 , π 2); x=− π 2 x=− π 2 and x= π 2; x= π 2 ; the distance grows without bound as | x | | x | approaching π 2 π 2 - ie, perpendicular to the line representing connectors north, the boat would be so far away, the fisherman could not see it; 3; when x=− π 3 , x=− π 3 , the boat is 3 km away; 1.73; when x= π 6 , x= π 6 , the boat is approximately 1.73 km away; 1.5 km reaches x=0 x=0 57. h(x)=2tan, π 120 x); h(x)=2tan(π 120 x); h(0)=0: h(0)=0: After 0 seconds, the rocket is 0 mi above the ground; h(30)=2: h(30)=2: after 30 seconds, the rockets are 2 mi tall; As x x approaches 60 seconds, the values of h(x) h(x) are increasing. The distance to the rocket grows so large that the camera can no longer track it. 1. The function y=sinx y=sinx is one-on-one on [− π 2 , π 2]; [− π 2 , π 2]; Thus, this interval is the interval of the reverse function of y =sinx, y=sinx, f(x)= sin −1 x. f(x)= sin −1 x. The y=cosx y=cosx function is one-to-one at [0.π]; [0,π]; This interval is thus the interval for the reverse function of y=cosx,f(x)= cos −1 x. y=cosx,f(x)= cos −1 x. 3. π 6 π 6 is the radian target for an angle between − π 2 − π 2 and π 2 π 2 if the sine is 0,5. 5. For a function to have a reverse function, the function must be one-to-one and must pass the horizontal line sample. The regular sine feature is not one-to-one unless its domain is limited in some way. Mathematicians have agreed to limit the sine function to the range [− π 2 , π 2] [− π 2 , 2] so that it is one-on-one and possesses a reverse. 7. True . The angle, ω 1 ω 1, equal to arccos(−x) arccos(−x), x>0 x>0, will be a different quadrant angle with reference angle, ω 2 ω 2 , where ω 2 ω 2 equals arccosx arccosx, x>0 x>0. Da ω 2 ω 2 is the reference angle for ά 1 ά 1 , ω 2 =π− ς 1 ω 2 =π− ά 1 and arccos(−x) arccos(−x) = π−arccosx π−arccosx-37. x−1 − x 2 +2x x−1 − x 2 +2x 41. x+0.5 − x 2 −x+ 3 4 x+0.5 − x 2 −x+ 3 449. domain [−1.1]; [−1.1]; range [0.π] [0.π] 51. x=0.00 x=0.00 61. No. The angle the ladder does with the horizontal is 60 degrees. 1. amplitude: 3; period: 2π; 2π; centerline: y=3; y=3; no asymptotes 3. amplitude: 3; period: 2π; 2π; center line: y=0; y=0; no asymptotes 5. amplitude: 3; period: 2π; 2π; center line: y=−4; y=−4; no asymptotes 7. amplitude: 6; period: 2π 3 ; 2π 3 ; center line: y=−1; y=−1; no asymptotes 9. stretching factor: none; period: π π; center line: y=−4; y=−4; asymptotes: x= π 2 +πk, x= π 2 +πk, where k k is an integer 11. stretching factor: 3; period: π 4 π 4 ; center line: y=−2; y=−2; asymptotes: x= π 8 + π 4 k, x= π 8 + π 4 k, where k k is an integer 13. amplitude: none; period: 2π; 2π; no phase change asymptotes: x= π 2 k, x= π 2 k, where k k is an odd integer 15. amplitude: none; period: 2π 5 ; 2π 5 ; no phase change asymptotes: x= π 5 k, x= π 5 k, where k k is an integer 17. amplitude: none; period: 4π; 4π; no phase change asymptotes: x=2πk, x=2πk, where k k is an integer 19. largest: 20,000; minimum: 4,000 21. amplitude: 8,000; period: 10; phase change: 0 23. In 2007, the expected population is 4,413. In 2010, the population will be 11,924. The graphs are not symmetrical for the line y=x. y=x. They are symmetrical in terms of the y y-axis. 41. The graphs appear to be identical. 1. amplitude: 0,5; period: 2π; 2π; center line y=0 y=0 3. amplitude: 5; period: 2π; 2π; center line: y=0 y=0 5. amplitude: 1; period: 2π; 2π; centre line: y=1 y=1 7. amplitude: 3; period: 6π; 6π; center line: y=0 y=0 9. amplitude: none; period: π π; centre line: y=0, y=0, asymptotes: x= 2π 3 +πk, x= 2π 3 +πk, where k k is an integer 11. amplitude: none; period: 2π 3 ; 2π 3 ; center line: y=0, y=0, asymptotes: x= π 3 k, x= π 3 k, where k k is an integer 13. amplitude: none; period: 2π; 2π; center line: y=−3 y=−3 15. amplitude: 2; period: 2; center line: y=0; y=0; f(x)=2sin(π(x-1)) f(x)=2sin(π(x-1)) 17. amplitude: 1; period: 12; phase change: −6; −6 center line y=−3 y=−3 19. D(t)=68−12sin(π 12 x) D(t)=68−12sin, π 12 x) 21st period: π 6 π 6 ; horizontal shift: −7 −7 23. f(x)=sec(πx); f(x)=sec(πx); period: 2; phase change: 0 27. The views are different because the wave period is 1 25 . 1 25 . Over a larger domain, there will be several cycles of Graph. 31. At the approximate intervals (0,5,1),(1,6,2,1),(2,6,3,1),(3,7,4,2),(4,7,5,2 ,(5,6,6,6,2 2,6,3,1 (3,7,4.2), (4,7,5,2), (5,6,6,28) 33. f(x)=2cos(12(x+ π 4))+3 f(x)=2cos(12(x+ π 4))+3 35. This graph is periodic with a period of 2π. 2π. 41. 1− (1−2x) 2 1− (1−2x) 2 49. approx. 0.07 radians radians