



Correlation of

Precalculus: Mathematics for Calculus, 8/E,
by James Stewart/ Lothar Redlin, © 2024,
ISBN: 9798214033631

to

Indiana
Academic Standards for Mathematics
High School
Precalculus: Algebra

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Academic Standards for Mathematics	Where Addressed
PROCESS STANDARDS FOR MATHEMATICS	
PS.1: Make sense of problems and persevere in solving them.	This mathematical practice standard is addressed throughout. For example, see: Section 1.5 (pp. 45-59), Section 1.8 (pp. 81-91), Section 3.1 (pp. 252-260), Section 4.1 (pp. 338-346), Section 4.5 (pp. 369-378), Section 4.7 (pp. 391-396), Section 5.6 (pp. 458-471), Section 6.2 (pp. 496-505), Section 6.5 (pp. 524-532), Section 6.6 (pp. 532-539), Section 10.1 (pp. 766-774)
PS.2: Reason abstractly and quantitatively.	This mathematical practice standard is addressed throughout. For example, see: Section 1.6 (pp. 59-64), Section 2.4 (pp. 185-192), Section 2.8 (pp. 224-234), Section 3.7 (pp. 318-324), Section 5.2 (pp. 417-427), Section 6.4 (pp. 516-523), Section 9.2 (pp. 677-685), Section 10.1 (pp. 766-774), Section 10.4 (pp. 792-802), Section 11.2 (pp. 838-843), Section 11.3 (pp. 844-852)
PS.3: Construct viable arguments and critique the reasoning of others.	This mathematical practice standard is addressed throughout. For example, see: Section 2.3 (pp. 172-184), Section 4.4 (pp. 362-368), Section 10.6 (pp. 810-816), Section 11.5 (pp. 859-867)
PS.4: Model with mathematics.	This mathematical practice standard is addressed throughout. For example, see: Section 1.3 (pp. 25-35), Section 1.7 (pp. 65-81), Section 1.10 (pp. 106-116), Section 1.12 (pp. 124-131), Focus on Modeling (pp. 141-146), Section 2.2 (pp. 159-172), Section 2.5 (pp. 193-200), Focus on Modeling (pp. 243-250), Section 3.2 (pp. 260-274), Focus on Modeling (pp. 332-335), Section 4.6 (pp. 379-391), Focus on Modeling (pp. 403-408), Focus on Modeling (pp. 479-483), Focus on Modeling (pp. 549-552), Focus on Modeling (pp. 598-602), Section 8.5 (pp. 637-646), Focus on Modeling (pp. 661-664), Section 9.5 (pp. 714-715), Focus on Modeling (pp. 759-764), Section 10.2 (p. 783), Focus on Modeling (pp. 822-825), Focus on Modeling (pp. 872-875), Focus on Modeling (pp. 925-928)
PS.5: Use appropriate tools strategically.	This mathematical practice standard is addressed throughout. For example, see: Section 1.9 (pp. 92-106), Section 1.11 (pp. 117-123), Section 3.3 (pp. 275-281), Section 5.1 (pp. 410-417), Section 6.1 (pp. 486-496), Section 8.1 (pp. 604-609), Section 9.1 (pp. 666-676), Section 9.6 (pp. 718-729), Section 10.3 (pp. 784-792)
PS.6: Attend to precision.	This mathematical practice standard is addressed throughout. For example, see: Section 1.1 (pp. 2-12), Section 2.7 (pp. 214-223), Section 3.5 (pp. 293-300), Section 4.3 (pp. 352-362), Section 5.5 (pp. 451-458), Section 7.2 (pp. 561-569), Section 7.3 (pp. 570-580), Section 9.8 (pp. 735-740)

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Academic Standards for Mathematics	Where Addressed
PS.7: Look for and make use of structure.	This mathematical practice standard is addressed throughout. For example, see: Section 1.2 (pp. 13-25), Section 2.1 (pp. 148-159), Section 3.4 (pp. 281-292), Section 3.6 (pp. 301-318), Section 4.2 (pp. 346-351), Section 7.1 (pp. 554-561), Section 8.3 (pp. 618-627), Section 9.5 (pp. 708-718), Section 10.1 (pp. 766-774), Section 11.5 (pp. 859-867)
PS.8: Look for and express regularity in repeated reasoning.	This mathematical practice standard is addressed throughout. For example, see: Section 1.4 (pp. 36-45), Section 2.6 (pp. 201-214), Section 5.4 (pp. 442-450), Section 6.3 (pp. 505-516), Section 7.5 (pp. 586-592), Section 9.4 (pp. 698-708), Section 10.2 (pp. 775-783), Section 11.4 (pp. 853-858)
Functions	
PC.F.1 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	Section 2.1 (pp. 148-159), Section 2.2 (pp. 159-172), Section 2.3 (pp. 172-184), Section 2.4 (pp. 185-192), Section 2.5 (pp. 193-200), Section 2.6 (pp. 201-214), Chapter 2 Focus on Modeling (pp. 243-250), Section 3.1 (pp. 252-260), Section 3.2 (pp. 260-274), Section 3.6 (pp. 301-318)
PC.F.2 Find linear models by using median fit and least squares regression methods, making use of technology. Decide which among several linear models gives a better fit. Interpret the slope and intercept in terms of the original context.	Chapter 1 Focus on Modeling (pp. 141-146), Section 9.1 (p. 676 #77),
PC.F.3 Compose functions and find the domain of composite functions.	Section 2.7 (pp. 214-223)
PC.F.4 Determine if a graph or table has an inverse, and justify if the inverse is a function, relation, or neither. Identify the values of an inverse function/relation from a graph or a table, given that the function has an inverse. Derive the inverse equation from the values of the inverse.	Section 2.8 (pp. 224-234), Section 5.5 (pp. 451-458)
PC.F.5 Produce an invertible function from a non-invertible function by restricting the domain.	Section 2.8 (p. 232 #85-88), Section 5.5 (pp. 451-458)

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Academic Standards for Mathematics	Where Addressed
PC.F.6 Recognize even and odd functions from their graphs and algebraic expressions.	Section 2.6 (pp. 208-209, 212 #81-90, 214 #100-102), Section 2.7 (p. 223 #92), Section 3.2 (p. 273 #81), Section 5.2 (pp. 422-423, 426 #83-90), Section 5.3 (p. 429), Section 5.4 (pp. 443, 445)
Quadratic, Polynomial and Rational Equations and Functions	
PC.QPR.1 Use the method of completing the square to transform any quadratic equation into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.	Section 1.5 (pp. 49-50), Section 1.9 (pp. 99, 106 #117), Section 3.1 (pp. 253-255), Section 8.4 (p. 607), Section 10.4 (pp. 795-798)
PC.QPR.2 Understand and use addition, subtraction, multiplication, and conjugation of complex numbers.	Section 1.6 (pp. 59-61, 64), Section 8.3 (pp. 621-622, 626)
PC.QPR.3 Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	Section 8.1 (p. 609 #73), Section 8.3 (p. 619)
PC.QPR.4 Know and apply the Remainder Theorem and the Factor Theorem.	Section 3.3 (pp. 278-280)
PC.QPR.5 Understand the Fundamental Theorem of Algebra. Find a polynomial function of lowest degree with real coefficients when given its roots.	Section 3.5 (pp. 293-300)
PC.QPR.6 Graph rational functions with and without technology. Identify and describe features such as intercepts, domain and range, and asymptotic and end behavior.	Section 3.6 (pp. 301-318)
Exponential and Logarithmic Functions	
PC.EL.1 Use the definition of logarithms to convert logarithms from one base to another and prove simple laws of logarithms.	Section 4.4 (pp. 362-368)
PC.EL.2 Use the laws of logarithms to simplify logarithmic expressions, approximate the value of a logarithmic expression, and solve logarithmic equations.	Section 4.4 (pp. 362-368), Section 4.5 (pp. 369-378)
PC.EL.3 Graph and solve real-world and other mathematical problems that can be modeled using exponential and logarithmic functions; interpret the solution and determine whether it is reasonable. Identify and describe features such as intercepts, domain, range, asymptotes, and end behavior.	Section 4.1 (pp. 338-346), Section 4.2 (pp. 346-351), Section 4.3 (pp. 352-362), Section 4.6 (pp. 379-391), Section 4.7 (pp. 391-396)
PC.EL.4 Use technology to find a quadratic, exponential, logarithmic, or power function that models a relationship for a bivariate data set to make predictions.	Section 3.1 (pp. 252-260), Section 4.6 (pp. 379-391)
Sequences and Series	
PC.SS.1 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	Section 11.1 (pp. 828-838)
PC.SS.2 Write arithmetic and geometric sequences both recursively and with an explicit formula; use them to model situations and translate between the two forms.	Section 11.2 (pp. 838-843), Section 11.3 (pp. 844-852)

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Academic Standards for Mathematics	Where Addressed
PC.SS.3 Find partial sums of arithmetic and geometric series and represent them using sigma notation.	Section 11.2 (pp. 839-843), Section 11.3 (pp. 846-847, 850-851)
PC.SS.4 Model and solve real-world problems involving applications of sequences and series, interpret the solutions and determine whether the solutions are reasonable.	Section 11.1 (pp. 828-838), Section 11.2 (pp. 838-843), Section 11.3 (pp. 844-852)
Conics	
PC.CO.1 Construct the equation of a parabola given a focus and directrix.	Section 10.1 (pp. 766-774), Section 10.4 (pp. 792-802)
PC.CO.2 Construct the equation of a circle of given center and radius. Complete the square to find the center and radius of a circle given by an equation.	Section 1.9 (pp. 97-99, 104)
PC.CO.3 Construct the equations of ellipses and hyperbolas given at least 2 of the following: foci, vertices, length of an axis, or point on the curve.	Section 10.2 (pp. 775-783), Section 10.3 (pp. 784-792), Section 10.4 (pp. 792-802)
PC.CO.4 Graph conic sections. Identify and describe features like center, vertex or vertices, focus or foci, directrix, axis of symmetry, major axis, minor axis, and eccentricity.	Section 10.1 (pp. 766-774), Section 10.2 (pp. 775-783), Section 10.3 (pp. 784-792), Section 10.4 (pp. 792-802)

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