

North Carolina Tech Math I with CORD Geometry, 2nd Edition**Technical Mathematics I**

Technical Mathematics I continues students' study of algebra and geometry, building upon middle school and Algebra I topics. Problem solving, measurement, special relationships in right triangles, transformations, and geometric applications of algebra are the topics to be studied in an application-centered environment. Appropriate technology, from manipulatives to calculators and application software, should be used regularly for instruction and assessment.

Prerequisites

- Apply geometric properties and relationships to solve problems.
- Use tables, formulas and algebraic expressions to model and solve problems.
- Define and use linear functions to model and solve problems.
- Operate with matrices to model and solve problems.

Number and Operations, Geometry and Measurement, Algebra**Competency Goal 1: The learner will apply various strategies to solve problems.**

- 1.01** Apply various techniques and strategies to solve problems.
- a) Select or create an appropriate graphical display for a given set of data.
 - b) Identify and represent patterns using appropriate algebraic notation.
 - c) Select and apply appropriate formulas.
 - d) Choose or create appropriate representations of two- and three-dimensional figures.

ST/TE: 9 - 11, 16 - 18, 24 - 25, 28 - 29, 33 - 35, 41, 42 - 43, 44 - 50, 51 - 65, 69, 70, 71 - 73, 78 - 79, 83 - 84, 87 - 88, 92 - 94, 100, 101 - 102, 107 - 109, 111, 112 - 114, 115 - 122, 123 - 137, 145 - 147, 152 - 154, 159 - 161, 167, 168 - 170, 176 - 178, 182, 183, 184 - 189, 190 - 201, 208 - 210, 214, 215 - 217, 221, 222 - 223, 228 - 230, 235 - 236, 237 - 241, 242 - 253, 260 - 261, 266 - 267, 270 - 272, 276 - 278, 282 - 284, 289 - 290, 291 - 296, 297 - 307, 314 - 315, 320 - 322, 328 - 330, 333 - 334, 338, 339 - 340, 346 - 347, 351 - 353, 358 - 360, 363 - 366, 367 - 372, 373 - 387, 392 - 393, 394 - 396, 402 - 404, 410 - 412, 418 - 420, 426 - 428, 435 - 437, 438 - 443, 444 - 455, 462 - 464, 468 - 470, 474, 475 - 476, 479 - 480, 484 - 486, 490 - 491, 495 - 496, 497 - 503, 504 - 515, 522 - 524, 530 - 532, 538-541, 546 - 549, 555 - 556, 561 - 563, 564 - 570, 571 - 579, 586 - 588, 593 - 595,

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601 - 604, 608, 609 - 611, 617 - 618, 622 - 625, 629 - 631, 635 - 636, 640 - 641, 642-649, 650 - 663, 671 - 673, 678 - 680, 685 - 687, 690, 691 - 693, 696 - 697, 703 - 704, 709 - 711, 712 - 720, 721 - 730

Competency Goal 2: The learner will measure and apply geometric concepts to solve problems.

2.01 Select and use appropriate tools to measure two- and three-dimensional figures; interpret and communicate results with regard to precision.

ST/TE: 12, 16 - 18, 20 - 22, 24, 35, 44 - 45, 54 - 61, 63, 294 - 296, 297, 310, 323, 367 - 369, 462, 550 - 551, 681, 683, 716 - 718

2.02 Interpret and construct maps and scale drawings to solve problems.

ST/TE: 36 - 43, 48 - 50, 61, 65, 68, 73, 155, 222, 234, 235, 247, 249, 267, 281, 312, 313, 315, 316 - 322, 323 - 330, 331 - 334, 343, 377, 387, 390 - 396, 397 - 403, 421 - 428, 429 - 437, 441 - 443, 444 - 455, 461, 463, 464, 469, 470, 486, 487 - 491, 524, 558, 559, 560, 589 - 593, 603, 616, 617 - 618, 620, 633, 642 - 646, 650, 652, 653, 655, 657, 658, 661, 665, 682 - 688, 698 - 704, 707, 709, 716 - 718, 726, 727, 729

2.03 Use the length, area, and volume of geometric figures to solve problems. Include arc length, area of sectors of circles; lateral area, surface area, and volume of three-dimensional figures; and perimeter, area, and volume of composite figures.

ST/TE: 259, 261, 289, 300, 318, 321, 328, 330, 352, 458 - 464, 465 - 470, 471 - 476, 477 - 480, 481 - 486, 487 - 491, 492 - 496, 497 - 503, 504 - 514, 515, 517, 523, 528, 529, 538, 539, 541, 549, 556, 571, 573, 577, 595, 596 - 604, 605 - 611, 612 - 618, 619 - 625, 626 - 631, 632 - 636, 637 - 641, 647 - 649, 650 - 663, 673, 680, 693, 697, 711

2.04 Use the trigonometric ratios to model and solve problems involving right triangles.

ST/TE: 349 - 353, 354 - 360, 361 - 366, 369 - 371, 375, -377, 380, 383, 385 - 387, 396, 448, 451, 478, 491, 496, 505, 529, 532, 577, 711, 718 - 720

Competency Goal 3: The learner will describe the transformation of polygons in the coordinate plane algebraically.

3.01 Apply algebraic and trigonometric concepts to confirm properties of geometric figures in the coordinate plane.

ST/TE: 141 - 145, 182, 298, 358, 359, 390 - 396, 405 - 412, 413 - 420, 421 - 428, 429 - 437, 453, 455, 476, 486, 496, 506, 518, 519 - 524, 549, 563, 564 - 565, 572, 574, 579, 588, 611, 618, 631, 636, 667, 671, 673, 680, 684, 689, 690, 693, 698-704, 723, 729

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3.02 Describe the transformation (translation, reflection, rotation, dilation) of polygons in the coordinate plane in simple algebraic terms.

ST/TE: 667, 673, 689, 693, 698 - 704, 708 - 711, 723, 729

3.03 Use matrix operations (addition, subtraction, multiplication, scalar multiplication) to describe the transformation of polygons in the coordinate plane.

ST/TE: None