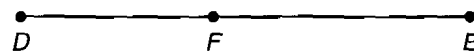
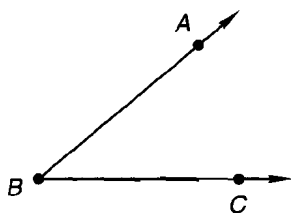


Advanced Mathematics

Testing Schedule

Test to be administered:	Covers material up through:	Give after teaching:
Test 1	Lesson 4	Lesson 8
Test 2	Lesson 8	Lesson 12
Test 3	Lesson 12	Lesson 16
Test 4	Lesson 16	Lesson 20
Test 5	Lesson 20	Lesson 24
Test 6	Lesson 24	Lesson 28
Test 7	Lesson 28	Lesson 32
Test 8	Lesson 32	Lesson 36
Test 9	Lesson 36	Lesson 40
Test 10	Lesson 40	Lesson 44
Test 11	Lesson 44	Lesson 48
Test 12	Lesson 48	Lesson 52
Test 13	Lesson 52	Lesson 56
Test 14	Lesson 56	Lesson 60
Test 15	Lesson 60	Lesson 64
Test 16	Lesson 64	Lesson 68
Test 17	Lesson 68	Lesson 72
Test 18	Lesson 72	Lesson 76
Test 19	Lesson 76	Lesson 80
Test 20	Lesson 80	Lesson 84
Test 21	Lesson 84	Lesson 88
Test 22	Lesson 88	Lesson 92
Test 23	Lesson 92	Lesson 96
Test 24	Lesson 96	Lesson 100
Test 25	Lesson 100	Lesson 104
Test 26	Lesson 104	Lesson 108
Test 27	Lesson 108	Lesson 112
Test 28	Lesson 112	Lesson 116
Test 29	Lesson 116	Lesson 120
Test 30	Lesson 120	Lesson 124
Test 31	Lesson 124	Lesson 125

- Three times the complement of angle A is 60° less than the supplement of angle A . Find the measure of angle A .
- The ratio of students to teachers in the school was 8 to 5. If there were 1400 students, how many teachers were there?
- In a taste test, 72% of the people polled preferred cereal B. If a total of 936 people polled preferred cereal B, how many people were polled?
- Construct an angle which is congruent to $\angle ABC$, then bisect it.
- Construct a perpendicular to \overline{DE} at F .



- Construct a triangle whose sides have lengths a , b , and c .



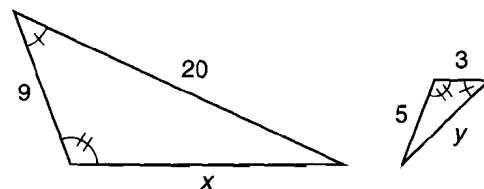
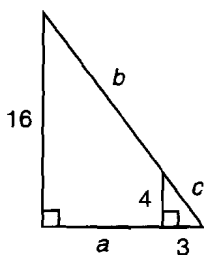
7. Solve: $\begin{cases} 2x + 6y = -36 \\ x - 3y = 0 \end{cases}$

8. Solve: $6(x + x^0 - 1) = 2(-x + 8)$

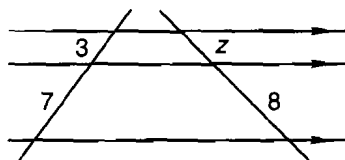
9. Add: $\frac{5}{x(x+1)} + \frac{4}{x+1} + \frac{3}{x}$

10. Expand: $\frac{4p^3s^{-5}}{p^{-3}s} \left(\frac{2^{-1}p^{-2}s}{p^3} + \frac{p^2s^3}{s^{-3}} \right)$

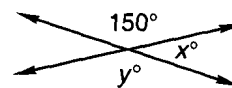
- The lengths of the sides of a triangle are 8 m, 6 m, and 5 m. Is the triangle a right triangle, an acute triangle, or an obtuse triangle?
- Find a , b , and c .
- Find x and y .



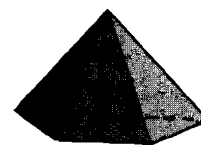
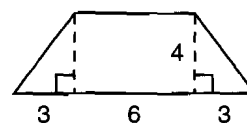
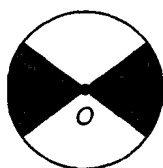
- Find z .



- Find x and y .



- An equilateral triangle has a perimeter of 24 cm and an area of $16\sqrt{3}$ cm². Find the altitude of the triangle.
- A sphere has a radius of 5 feet. Find the volume and surface area of the sphere.
- In the circle, O is the center. The radius of the circle is $\sqrt{8}$ meters. Find the area of the shaded sectors.
- Find the volume of the cone whose base is shown and whose altitude is 8 cm. Dimensions are in centimeters.



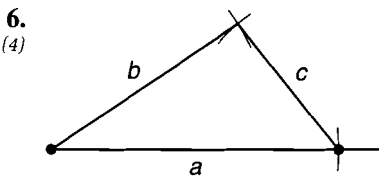
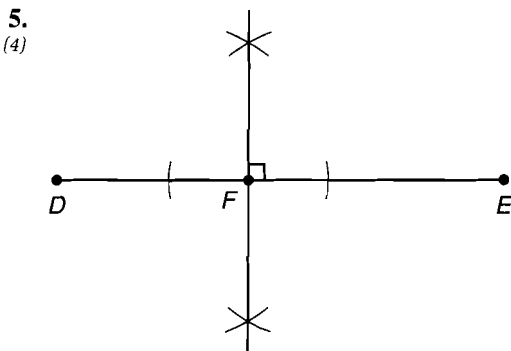
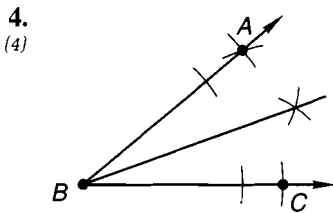
20. Evaluate: $x^3 - 3y^3 + 2(x - y)(x^2 + 3xy + y^2)^0$ if $x = 3$ and $y = 2$

Test 1

1. $3(90 - A) = (180 - A) - 60$
 (1) $270 - 3A = 120 - A$
 $2A = 150$
 $A = 75^\circ$

2. $\frac{s}{t} = \frac{8}{5}$
 (R) $\frac{1400}{t} = \frac{8}{5}$
 $8t = 7000$
 $t = 875$

3. $\frac{72}{100} = \frac{936}{T}$
 (R) $72T = 93,600$
 $T = 1300$



7. $x - 3y = 0$
 (R) $x = 3y$
 $2x + 6y = -36$
 $2(3y) + 6y = -36$
 $12y = -36$
 $y = -3$
 $x = 3y$
 $x = 3(-3)$
 $x = -9$

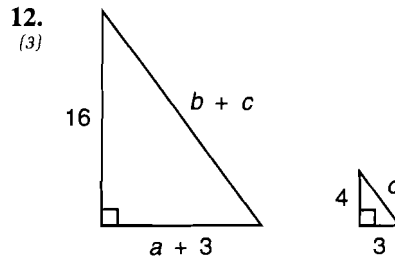
8. $6(x + x^0 - 1) = 2(-x + 8)$
 (R) $6x + 6 - 6 = -2x + 16$
 $8x = 16$
 $x = 2$

9. $\frac{5}{x(x+1)} + \frac{4}{(x+1)} + \frac{3}{x}$
 (R) $= \frac{5 + 4x + 3(x+1)}{x(x+1)} = \frac{7x + 8}{x^2 + x}$

10. $\frac{4p^3s^{-5}}{p^{-3}s} \left(\frac{2^{-1}p^{-2}s}{p^3} + \frac{p^2s^3}{s^{-3}} \right)$
 (R) $= \frac{4p^6}{s^6} \left(\frac{s}{2p^5} + p^2s^6 \right) = \frac{2p}{s^5} + 4p^8$

11. $c^2 \bigcirc a^2 + b^2$
 (3) $8^2 \bigcirc 6^2 + 5^2$
 $64 \bigcirc 36 + 25$
 $64 > 61$

Since the square of the largest side is greater than the sum of the squares of the other two sides, the triangle is an **obtuse triangle**.



$c^2 = 4^2 + 3^2$
 $c = \sqrt{16 + 9}$
 $c = 5$
 $\frac{4}{16} = \frac{3}{3 + a}$
 $12 + 4a = 48$
 $4a = 36$
 $a = 9$
 $\frac{4}{16} = \frac{c}{b + c}$
 $\frac{4}{16} = \frac{5}{b + 5}$
 $4b + 20 = 80$
 $4b = 60$
 $b = 15$

problem set 1

1. 30° 2. 10° 3. 40° 4. 1775 grams 5. 36 6. $\frac{x^4 y^2}{8}$ 7. $-\frac{87}{8}$
 8. $7y - 2xy^3$ 9. $\frac{1}{y^2 m} - \frac{3x^2 m^2}{y}$ 10. 13 11. -3 12. $\frac{x^2 + 2x + 2}{x^2 + x}$
 13. $4x^3 + 10x^2 + 10x + 6$ 14. $N_N = 10; N_D = 40$ 15. $N_P = 40; N_D = 10$
 16. $N_N = 15; N_D = 8$ 17. Two line segments are congruent if the segments have equal length.
 18. An acute angle is an angle whose measure is greater than 0° and less than 90° .
 19. $x = 36; y = 108$ 20. $A = 120; B = 30; C = 40$ 21. $A = 20; B = 50; C = 40$
 22. 6 23. $2\pi^2 \text{ cm}$ 24. $4\sqrt{3} \text{ in.}^2$ 25. $18\sqrt{2} \text{ cm}$ 26. $3\pi \text{ m}^2$ 27. $288\pi \text{ cm}^2$
 28. $(208 - 52\pi) \text{ m}^2 = 44.64 \text{ m}^2$ 29. A 30. B

problem set 2

1. 40° 2. 30° 3. $N_R = 5; N_B = 8$ 4. 2091 5. 2025 gallons 6. $\frac{5a^7}{b^4}$
 7. -15 8. $6r^2s - 5rs^2$ 9. $c^2d^2f - cd^2$ 10. $\frac{5}{3}$ 11. -1
 12. $3x^3 + x^2y - 5xy^2 + 2y^3$ 13. $N_R = 20; N_B = 50$ 14. $N_W = 5; N_G = 1$ 15. 24
 16. A triangle which has sides all of different lengths 17. $x = 145; y = 29$
 18. $x = 120; y = 60; z = 60$ 19. $A = 55; B = 14; C = 110$ 20. 21 21. $4\sqrt{3} \text{ m}$
 22. $\frac{175\pi}{18} \text{ m}^2$ 23. $180\pi \text{ m}^2$
 24. $V_{\text{cylinder}} = 128\pi \text{ m}^3 = 402.12 \text{ m}^3; V_{\text{sphere}} = \frac{256\pi}{3} \text{ m}^3 = 268.08 \text{ m}^3$ 25. 12 cm
 26. 2 cm 27. $(80 + 12\pi) \text{ m}^3 = 117.70 \text{ m}^3$
 28. $V_{\text{cylinder}} = \left(\frac{1980 + 1125\pi}{2}\right) \text{ cm}^3 = 2757.15 \text{ cm}^3;$
 $A_{\text{surface}} = (508 + 260\pi) \text{ cm}^2 = 1324.81 \text{ cm}^2; V_{\text{cone}} = \left(\frac{660 + 375\pi}{2}\right) \text{ cm}^3 = 919.05 \text{ cm}^3$
 29. A 30. C

problem set 3

1. 20° 2. 259 3. 700 4. $N_N = 21; N_D = 8$ 5. Obtuse triangle
 6. Right to left: $SF = 2$; Left to right: $SF = \frac{1}{2}; x = 8; y = \frac{7}{2}$ 7. $x = \frac{45}{7}; y = \frac{35}{3}$
 8. $x = 9; y = \frac{63}{5}; z = \frac{84}{5}$ 9. $a = 12; b = 24; c = 15$
 10. $x = \sqrt{70}; y = 3\sqrt{14}; z = 3\sqrt{5}$ 11. $\frac{7p^7}{q^7}$ 12. $\frac{6a^6}{b}$ 13. $x = 3; y = 3$
 14. $\frac{55}{36}$ 15. $-\frac{4}{7}$ 16. $\frac{6x^2 - 8x - 2}{x(x-1)(x-2)}$ 17. $4x^5 - 3x^4 - 4x^3 + 8x^2 - 5$
 18. $3 + \frac{8}{x^2y^6z^4}$ 19. 24 20. $\frac{15}{2}$ 21. $\frac{7\pi}{3} \text{ cm}^2$ 22. $12\pi \text{ cm}^2$
 23. $(4 - \pi) \text{ in.}^2 = 0.86 \text{ in.}^2$ 24. $4\pi \text{ in.}^2$ 25. $(48 + 4\pi) \text{ ft} = 60.57 \text{ ft}$ 26. 6.9 cm^2
 27. $3888\pi \text{ cm}^3$ 28. 70 m^3 29. C 30. A

problem set 4

1. 25° 2. 1580 3. 825 4. $N_D = 11; N_Q = 9$ 5. $N_O = 28; N_B = 16$
 6. Obtuse triangle 7. Refer to Lesson 4. 8. Refer to Lesson 4.
 9. Refer to Lesson 4. 10. Refer to Lesson 4. 11. Refer to Lesson 4.
 12. $x = 10; y = 5$ 13. $\frac{1}{15}$ 14. $-\frac{32}{7}$ 15. $\frac{-x^2 + 4x + 3}{x^2(x+1)}$ 16. $\frac{3s}{t^3} - 9s^7t$
 17. $\frac{19}{2}$ 18. $x = 9; y = \frac{20}{3}$ 19. $a = 4; b = 10; c = 8$