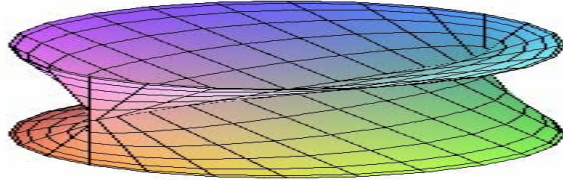


MA 104 INTRODUCTORY ALGEBRA  
-A JUST IN TIME APPROACH-  
PRACTICE TEST FIVE  
Sections: 6.1, 6.2, 6.3, 6.4, 6.5, 7.1, 7.3, 7.4.



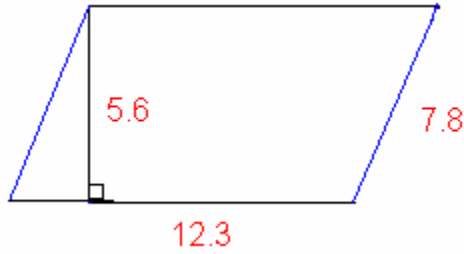
In exercise 1-3, add like terms and identify whether it's a monomial, binomial, trinomial, or polynomial. [6.1]

1)  $3(x^2 - 2x) + 6x - x^2$

2)  $x(xy - 1) - (x^2y + 2x)$

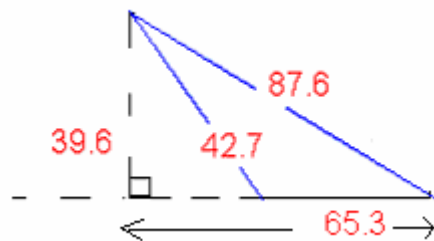
3)  $2x^2y - 6[x - x^2y + xy] - xy$

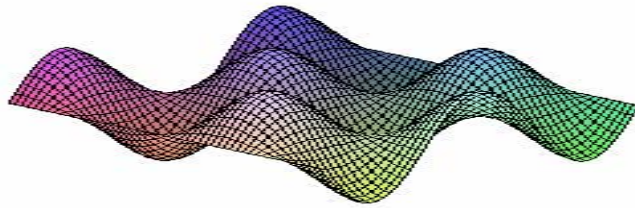
Find the perimeter of each shape in exercise 4-5. [6.1]



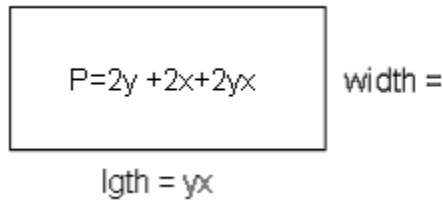
4.

5.



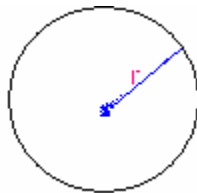


6. Use the given perimeter,  $P$ , to find the missing side of the following figure. Then find the area of the figure. [6.1, 6.4]



a)

b) The circumference of the following circle is  $9.6\pi$ ; find the radius.



7. Multiply the expressions in Exercise 7-10. [6.1, 6.2]

7)  $5x - 2x(3 - x)$

8)  $5x(-y + 3x) + y(y - 3x)$

9)  $(2m + 1)(3m - 7)$

10)  $-2(3r + 9)^2$

10b)

Multiply	$2a$	$+5$
$-3a$		

Factor the expressions in Exercise 11-21. [6.1, 6.3, 6.4]

11.  $b^2 - 10b + 25$

12.  $3a^2 - 27a$

13.  $8x^2 - 5x - 2$

14.  $3x^2 + 6x - 15$

15.  $9x^2 + 0x - 16$

16.  $2m^2 + 9m - 5$

17.  $6y^2 - 7y + 2$

18.  $3a^3 - 75a$

19.  $16q^2 + 40q + 25$

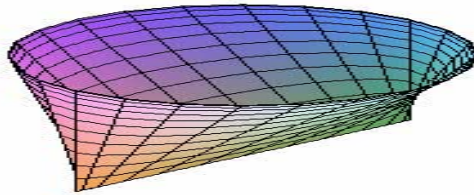
20.  $3y^2 + 10y + 3$

21.  $24x^2 + 24x - 18$

Factor		
	$m^2$	$+7m$
	$-2m$	$-14$

22.

[6.3, 6.4]



In exercise 23, simplify the expressions. [6.5]

23a)  $\left(\frac{1}{16}\right)^0$

b)  $\left(\frac{1}{16}\right)^{-1}$

c)  $(0.25)^{-2}$

$$d)(0.5)^{-1}$$

$$e)(0.25)^0$$

$$f)(0.125)^{-2}$$

24-25. Simplify the expressions. Remove all negative and zero exponents. Assume all expressions are defined. [6.5]

$$a) \frac{x^{-4}y^3}{x^2y^5}$$

$$b) \frac{a^3b^{-3}}{a^{-4}b^{-3}}$$

$$c) \left( \frac{x^{-2}y^{-3}}{x^{-2}y^2} \right)^{-2}$$

$$25. 6^8 \bullet 6^{-15}$$

In exercise 26-28, change each number to scientific notation. [6.5]

$$26. 320,000 \text{ kg}$$

$$27. \frac{24 \times 2 \cdot 4 \times 10^3}{2 \cdot 4 \times 10^{-9}}$$

$$28. (60 \times 10^0)(2 \cdot 4 \times 10^{-9})$$

In exercise 29-31 which of the pairs of equations form parallel lines? [7.1]

$$29) \begin{cases} 3x = y - 4 \\ 6y - 18x = 24 \end{cases}$$

$$30) \begin{cases} x + y = 1 \\ 2x + y = 2 \end{cases}$$

$$31) \begin{cases} y + \frac{1}{3}x + \frac{1}{3} = 0 \\ y + \frac{1}{3}x = 4 \end{cases}$$

32. Use substitution or elimination to solve the systems of equations. [7.3, 7.4]

$$a) \begin{cases} 2 = 5y + x \\ -1 = y + x \end{cases}$$

$$b) \begin{cases} y = 2x - 1 \\ y - 2x = 3 \end{cases}$$

$$c) \begin{cases} x = 4y - 3 \\ 4y - x = 3 \end{cases}$$

Answers:

1)  $2x^2$ ; b) *Monomial*

2)  $-3x$ ; b) *Monomial*

3)  $8x^2y - 7xy - 6x$ ; b) *Trinomial*

4) 40.2; 5) 192.5;

6) Given:  $P = 2y + 2x + 2yx \rightarrow 2(\text{length}) + 2(\text{width})$

By substitution:  $2(yx) + 2(\text{width}) = 2y + 2x + 2yx$

With elimination:  $2y + 2x = 2(\text{width})$

$\therefore y + x = \text{width}$

Ans: width =  $y + x$

Area: length(width) =  $yx(y + x) = y^2x + x^2y$

b) radius = 4.8 7)  $2x^2 - x$ ; 8)  $15x^2 - 8xy + y^2$

9)  $6m^2 - 11m - 7$ ; 10a)  $-18r^2 - 108r - 162$

10b)

Multiply	$2a$	$+5$
$-3a$	$-6a^2$	$-15a$

11)  $(b-5)^2$ ;

12)  $3a(a-9)$

13) *cannot*

*be*

*factored*

14)  $3(x^2 + 2x - 5)$

15)  $(3x+4)(3x-4)$

16)  $(2m-1)(m+5)$

17)  $(3y-2)(2y-1)$

18.  $3a(a+5)(a-5)$

19.  $(4q+5)^2$

20.  $(3y+1)(y+3)$

21.  $6(2x-1)(2x+3)$

Factor	m	+7
m	$m^2$	+7m
-2	-2m	-14

22.

$(m+7)(m-2)$

23a)  $\left(\frac{1}{16}\right)^0$  ----- > Ans : 1

b)  $\left(\frac{1}{16}\right)^{-1}$  ----- > Ans : 16

c)  $(0.25)^{-2}$  ----- > Ans : 16

Answers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

d) Ans: 2 , e) Ans: 1, f) Ans: 64

$$a) \frac{x^{-4}y^3}{x^2y^5} \dots\dots\dots \text{Ans} : \frac{1}{x^6y^2}$$

$$24) b) \frac{a^3b^{-3}}{a^{-4}b^{-3}} \dots\dots\dots \text{Ans} : a^7$$

$$c) \left( \frac{x^{-2}y^{-3}}{x^{-2}y^2} \right)^{-2} \dots\dots\dots y^{10}$$

$$25. 6^8 \bullet 6^{-15} = 6^{-7} \text{ or } \frac{1}{6^7}$$

$$26. 320,000 \text{ kg} \text{ --- } > \text{Ans} : 3 \cdot 2 \times 10^5$$

$$27. \frac{24 \times 2 \cdot 4 \times 10^3}{2 \cdot 4 \times 10^{-9}} \text{ ----- } > \text{Ans} : 2 \cdot 4 \times 10^{13}$$

$$28. (60 \times 10^0)(2 \cdot 4 \times 10^{-9}) \text{ ----- } > \text{Ans} : 1.44 \times 10^{-7}$$

$$29) 3x = y - 4$$

$$6y - 18x = 24 \text{ ----- } > \text{Parallel}$$

$$30) x + y = 1$$

$$2x + y = 2 \text{ ----- } > \text{Not}$$

*Parallel*

$$31) y + \frac{1}{3}x + \frac{1}{3} = 0$$

$$y + \frac{1}{3}x = 4 \text{ --- } > \text{Parallel}$$

32a)  $x = -7/4$  or  $x = -1.75$ ,  $y = 3/4$  or  $y = 0.75$ ; b) No solution; c) Infinite number of solutions.