Math 52 Midterm Practice Exam

The following exercises are taken from the book's end-of-chapter Practice Tests. The exercise numbers here correspond to the numbers in those tests. The answers to these exercises are at the end of this Practice Exam.

On the Midterm Exam, you must show all work to get full credit.

Chapter 1 Practice Test (Some of these are intentionally out of order.)

Evaluate and simplify.

7. $-3 - (-12)$

8. $-\frac{1}{3} + \frac{5}{12}$

10. $\frac{-4}{-3} \cdot \frac{15}{8}$

11. $\frac{-4}{3} \div \frac{-8}{-6}$

15. $(10)^1 + (-1)^4$

16. $(-2)^3 + (3)^2$

17. $-4^2 - 3^2$

18. $\sqrt{25} - \sqrt{9}$

20. $\dfrac{4 - 2 \cdot (-12)}{(-2)^2}$

21. $|2 - 8| - |-9|$

33. $-24 \div 6 \cdot 2 - 4$

34. $\dfrac{-7 - 3^2}{(-2)^3}$

23. Evaluate $\dfrac{w - 10}{-3k}$

when $w = 2$ and $k = -1$

32. Evaluate $I = P \cdot r \cdot t$

when $P = 800$, $r = .12$, and $t = \dfrac{3}{4}$

Simplify each by combining like terms, wherever possible.

25. $-8b^3 + 5b^3$

26. $-2h - (-9h)$

Chapter 2 Practice Test

Solve each equation.

21. $5(x - 2) + 2x = 9x - 2(3x - 5)$

22. $\frac{3x}{5} + \frac{1}{6} = \frac{x}{2} - \frac{1}{3}$

Solve this equation

23. $0.1x + 0.008 = 0.06x - 0.172$

Solve this proportion.

24. $\frac{x + 1}{4x - 2} = \frac{2}{5}$

Solve this inequality and draw its graph on the number line.

25. $2(y - 1) \geq 8 + 4y$

Chapter 3 Practice Test

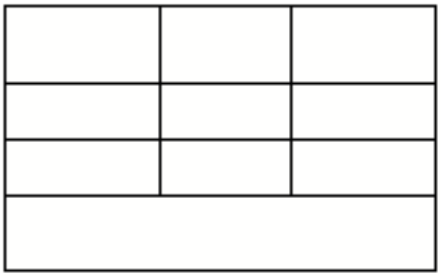
For each application problem,

You will be graded on each of these items.

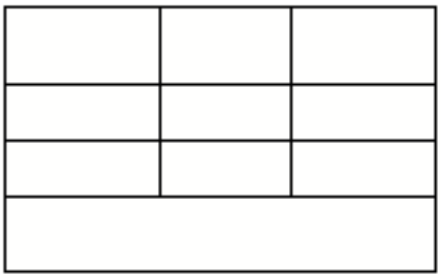
1. Set up the legend for *all* unknown values ✓
2. identify the formula ✓
3. solve the equation (show all work) ✓
4. write a sentence answering the question ✓

A chart will be provided for your convenience. You will *not* be graded on the chart.

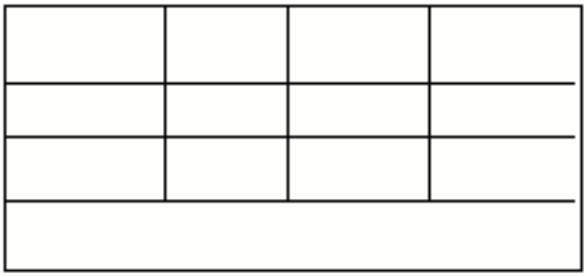
6. Juana has only two grandchildren, Jorge (the eldest) and Veronica. Her will states that Jorge is to receive $15,000 more than Veronica receives to help him pay for college. If Juana's will leaves $103,000 to her two grandchildren, how much will each of them receive?



7. The perimeter of a rectangle is 82 inches. The width is 7 inches shorter than the length. What are the length and width of the rectangle?



8. In a triangle, the measure of the largest angle is 40° more than the measure of the smallest angle. The measure of the middle angle is twice the measure the smallest angle. What are the measures of the three angles?



Chapter 4 Practice Test

Simplify each. Write the answer with positive exponents only.

1. $5^0 + 4^1$

8. $(3y^2)(-5y^3)$

9. $(-4x^3y^5)^2$

13. 2^{-4}

14. $\left(\frac{2}{11}\right)^{-2}$

15. $\left(\frac{2x}{w}\right)^{-4}$

16. $p^{-7} \cdot p^6$

18. $h^{-8} \cdot h^{-5}$

19. $\frac{x^{-8}}{x^{-4}}$

20. $\frac{y}{y^{-5}}$

Add or subtract these polynomials, as indicated. *Combine like terms and write the answer in descending order.*

26a. $(5x^2 - 3x) + (x - 2x^2)$

26b. $(9x + 6x^3 - 4) - (6 - 2x - 5x^3)$

Distribute and simplify.

27. $-8x^2(x - 5 + 2x^2)$

Multiply and simplify. Write the answer in descending order.

28. $(x^2 - 3)(2x + 3 - x^2)$

12. $(2x - 3)^2$

Rewrite into scientific notation.

22. 5,090,000

23. 0.00913

Expand to its natural form.

24. 7.41×10^3

25. 2.83×10^{-4}

Section 4.7 Focus Exercises

5. Perform the indicated operation. Write the answer in proper scientific notation.

a) $(1.1 \times 10^6) \times (3.7 \times 10^4)$

b) $\dfrac{3.6 \times 10^7}{2.4 \times 10^2}$

c) $(8.1 \times 10^7) \times (3.0 \times 10^{-3})$

d) $\dfrac{7.2 \times 10^4}{4.5 \times 10^9}$

Chapter 5 Practice Test

Use distribution to divide and simplify.

1. $\frac{9x^8 + 12x^6}{3x^2}$

2. $\frac{16w^6 - 8w^3}{-8w^3}$

Factor out the greatest common factor. (If the leading coefficient is negative, be sure to factor out -1 along with any other monomial factors.)

4. $18x^5y^3 + 24x^3y^2$

7. $-28x^3 - 14x^2$

Use factor by grouping to factor this polynomial.

29a. $4x^3 - 6x^2 + 10x - 15$

29b. $3x^3 - 6x^2 - 4x + 8$

Factor each polynomial. If the polynomial is not factorable, write prime.

27. $4x^2 - 9$

36. $64x^2 + 49y^2$

30a. $x^2 - 16x + 60$

30b. $x^2 + 6x + 9$

30f. $6x^2 - 13x - 5$

25. $6x^2 + 17x - 10$

Factor each completely. *Each can be factored more than once.*

31c. $3x^3 - 75x$

31e. $-10x^3 - 5x^2 + 30x$

Answers

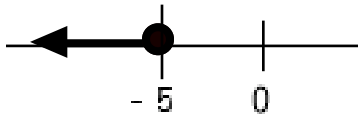
Chapter 1

7.	9	**8.**	$\frac{1}{12}$	**10.**	$\frac{5}{2}$	**11.**	-1
15.	11	**16.**	1	**17.**	- 25	**18.**	2
20.	7	**21.**	- 3	**33.**	- 12	**34.**	2
23.	$-\frac{8}{3}$	**32.**	72	**25.**	$-3b^3$	**26.**	7h

Chapter 2

21. $x = 5$ **22.** $x = -5$ **23.** $x = -\frac{9}{2}$ or $x = -4.5$

24. $x = 3$ **25.** $y \leq -5$



Chapter **3**

6. Jorge will receive $59,000 and Veronica will receive $44,000 from Juana's will.
7. The length is 24 inches and the width is 17 inches.
8. The smallest angle measures 35°, the middle angle is 70° and the largest angle is 75°.

Chapter 4

1.	5	**8.**	$-15y^5$	**9.**	$16x^6y^{10}$	**13.**	$\frac{1}{16}$
14.	$\frac{121}{4}$	**15.**	$\frac{w^4}{16x^4}$	**16.**	$\frac{1}{p}$	**18.**	$\frac{1}{h^{13}}$
19.	$\frac{1}{x^4}$	**20.**	y^6	**26a.**	$3x^2 - 2x$		
26b.	$11x^3 + 11x - 10$			**27.**	$-16x^4 - 8x^3 + 40x^2$		
28.	$-x^4 + 2x^3 + 6x^2 - 6x - 9$			**12.**	$4x^2 - 12x + 9$		
22.	5.09×10^6			**23.**	9.13×10^{-3}		
24.	7,410			**25.**	0.000283		

Section 4.7

5a. 4.07×10^{10} **5b.** 1.5×10^{5}

5c. 2.43×10^{5} **5d.** 1.6×10^{-5}

Chapter **5**

1. $3x^6 + 4x^4$ **2.** $-2w^3 + 1$

4. $6x^3y^2(3x^2y + 4)$ **7.** $-14x^2(2x + 1)$

29a. $(2x^2 + 5)(2x - 3)$ **29b.** $(3x^2 - 4)(x - 2)$

27. $(2x - 3)(2x + 3)$ **36.** prime

30a. $(x - 6)(x - 10)$ **30b.** $(x + 3)^2$

30f. $(3x + 1)(2x - 5)$ **25.** $(2x - 1)(3x + 10)$

31c. $3x(x - 5)(x + 5)$ **31e.** $-5x(2x - 3)(x + 2)$