

Math 52

Midterm Practice Exam

Chapter 1:

Evaluate and simplify.

#2 & 3, change subtraction to "add the opposite."

1. $-4 + (-9)$

$= \boxed{-13}$

2. $3 - (-12)$

$= 3 + +12$
 $= \boxed{15}$

3. $-20 - (-13)$

$= -20 + 13$
 $= \boxed{-7}$

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

Here, $10^1 = 10$ and
 $(-1)^4 = (-1) \cdot (-1) \cdot (-1) \cdot (-1) = +1$

$= 10 + 1$
 $= \boxed{11}$

5. $(-2)^3 + (3)^2$

Here, $(-2)^3 = (-2) \cdot (-2) \cdot (-2) = -8$

$= -8 + 9$
 $= \boxed{1}$

6. $(-6)^0 + (-5)^1$

Any value or quantity to the zero power is +1. (This is really sec. 6.1, not ch. 1.)

$= 1 + (-5)$
 $= \boxed{-4}$

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

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

9. $-24 \div 6 \cdot 2 - 4$

#7-9, Use the order of Operations on each.

- In $-7 - 3^2$, we are squaring 3, not -3.
- As in #5, above, $(-2)^3 = -8$

$= \frac{-7 - 9}{-8}$
 $= \frac{-16}{-8}$
 $= \boxed{2}$

- Absolute value bars are grouping symbols, so we must evaluate inside first: $* 2 - 8 = 2 + (-8) = -6$

$= |-6| - |-9|$
 now evaluate each absolute value separately.
 $= 6 - 9$
 $= 6 + (-9)$
 $= \boxed{-3}$

- Multiplication and division have the same rank, so we must do them — one at a time — from left to right.
 Divide first:

$= -4 \cdot 2 - 4$
 now multiply
 $= -8 - 4$
 $= -8 + (-4)$
 $= \boxed{-12}$

#10-11, when replacing variables with numbers, parentheses are often helpful.

10. Evaluate $\frac{10-w}{-3k}$
when $w = -2$ and $k = -1$

$$= \frac{10 - (-2)}{-3 \cdot (-1)}$$

$$= \frac{10 + (+2)}{+3}$$

$$= \frac{12}{3}$$

$$= \boxed{4}$$

11. Evaluate $\frac{x-m}{s}$
when $x = 28$, $m = 40$, and $s = 6$

$$= \frac{28 - 40}{6}$$

$$= \frac{-12}{6}$$

$$= \boxed{-2}$$

$28 - 40$
 $= 28 + (-40)$
 $= -12$
 \leftarrow

Simplify each by combining like terms, wherever possible.

12. $b^3 + (-5b^3)$

If helpful, we can treat the first term, b^3 , as $1b^3$

$$= 1b^3 + (-5b^3)$$

$$= \boxed{-4b^3}$$

Terms that have the same variable structure, when combined, the resulting term has the same variable structure.

13. $-2h - (-9h)$

$$= -2h + (+9h)$$

$$= \boxed{7h}$$

14. $4x^2 - 2x + 7x^2 - x$

#14

$$= 4x^2 + 7x^2 - 2x - x$$

this is like $-1x$

$$= \boxed{11x^2 - 3x}$$

15. $-5x^2 - 4y + 9x^2 + 3y$

#15

$$= -5x^2 + 9x^2 - 4y + 3y$$

$$= 4x^2 - 1y$$

$$= \boxed{4x^2 - y}$$

This step showing "minus 1y" is not necessary

this is better.