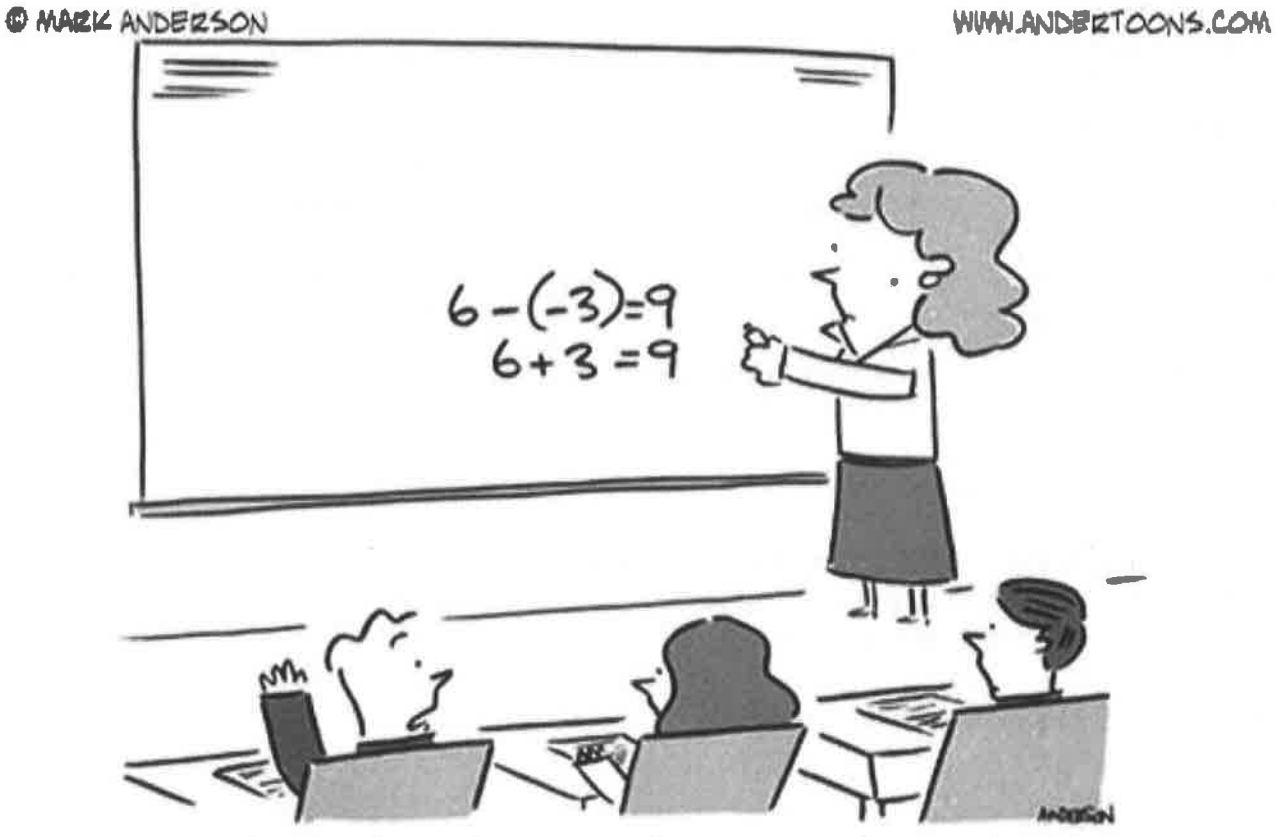
Unit 0

SOLUTIONS

Prerequisite Skills

MPM1D



Part 1 – Finding a Lowest Common Denominator

The lowest common denominator (LCD) is the lowest common multiple of the denominators of two or more fractions. You can find the LCD using multiples.

Example:

Find the LCD for $\frac{1}{6}$ and $\frac{1}{8}$

Solution:

List the multiples of 6 and 8 until a common value is reached.

6, 12, 18, **24**

8, 16, **24**

∴ the LCD for $\frac{1}{6}$ and $\frac{1}{8}$ is **24**

Part 2 – Converting from a Mixed Fraction to an Improper Fraction

There are 3 types of fractions

1) proper	**2)** improper	**3)** mixed
$\frac{3}{5}$	$\frac{5}{3}$	$2\frac{1}{3}$
denominator is larger	numerator is larger	

To convert from mixed to improper you must:

- Step 1: multiply the whole number part by the fractions denominator
- Step 2: add that product to the numerator
- Step 3: write that result on top of the denominator

Example: Convert $3\frac{2}{5}$ to an improper fraction

Solution:

- Multiply the whole number (3) by the denominator (5) which equals **15**
- Add that product (**15**) to the numerator (2) which equals **17**
- Then write the number above the denominator to get a final answer of $\frac{17}{5}$

Practice Part 1 & 2

1. Use multiples to find the lowest common denominator for each pair of fractions.

a) $\frac{1}{2}, \frac{1}{3}$

2, 4, (6), 8, 10
3, (6), 9, 12, 15

LCD: 6

b) $\frac{1}{4}, \frac{1}{5}$

4, 8, 12, 16, (20)
5, 10, 15, (20)

LCD: 20

c) $\frac{1}{3}, \frac{1}{7}$

3, 6, 9, 12, 15, 18, (21)
7, 14, (21)

LCD: 21

d) $\frac{1}{4}, \frac{1}{14}$

4, 8, 12, 16, 20, 24, (28)
14, (28)

LCD: 28

e) $\frac{1}{9}, \frac{1}{12}$

9, 18, 27, (36)
12, 24, (36)

LCD: 36

f) $\frac{1}{4}, \frac{1}{5}, \frac{1}{10}$

4, 8, 12, 16, (20)
5, 10, 15, (20)
10, (20)

LCD: 20

2. For each set of fractions, write equivalent fractions with common denominators

a) $\frac{5}{6}, \frac{2}{9}$

$= \frac{15}{18}, \frac{4}{18}$

b) $\frac{1}{2}, \frac{3}{4}, \frac{1}{6}$

2, 4, 6, 8, 10, (12)
4, 8, (12)
6, (12)

LCD is 12

$\frac{1 \times 6}{2 \times 6}$ $\frac{3 \times 3}{4 \times 3}$ $\frac{1 \times 2}{6 \times 2}$

$= \frac{6}{12}$ $= \frac{9}{12}$ $= \frac{2}{12}$

$\frac{6}{12}, \frac{9}{12}, \frac{2}{12}$

3. Convert each mixed fraction to an improper fraction

a) $2\frac{1}{5}$

$= \frac{2(5)+1}{5}$

$= \frac{11}{5}$

b) $1\frac{2}{7}$

$= \frac{1(7)+2}{7}$

$= \frac{9}{7}$

c) $4\frac{3}{4}$

$= \frac{4(4)+3}{4}$

$= \frac{19}{4}$

Part 3 – Adding/Subtracting Fractions

- **Step 1:** Get a common denominator
- **Step 2:** Add/Subtract the numerators only (the denominator stays the same)
- **Step 3:** Put in lowest terms

Example 1: $\frac{-2}{3}+\frac{1}{6}$

Solution:

$=\frac{-4}{6}+\frac{1}{6}$

$=-\frac{3}{6}$

$=-\frac{1}{2}$

Part 4 – Multiplying Fractions

- **Step 1:** Multiply the numerators
- **Step 2:** Multiply the denominators
- **Step 3:** Put in lowest terms

Example 1: $\frac{-2}{3}\times\frac{1}{6}$

Solution:

$=\frac{-2}{18}$

$=\frac{-1}{9}$

Part 5 – Dividing Fractions

- **Step 1:** turn the second fraction upside down (this is the reciprocal)
- **Step 2:** Multiply the first fraction by that reciprocal
- **Step 3:** Put in Lowest terms

Example 1: $\frac{-2}{3}\div\frac{1}{6}$

Solution:

$\frac{-2}{3}\div\frac{1}{6}=\frac{-2}{3}\times\frac{6}{1}=\frac{-12}{3}=-4$

Teacher Cartoon #6404

"To show you how well I understand fractions,
I only did half of my homework."

Practice Part 3, 4, & 5

4. Add/subtract the following fractions. Express answer in lowest terms.

a) $\frac{7}{8}-\frac{5}{8}$

$=\frac{2}{8}$

$=\frac{1}{4}$

b) $\frac{-5}{6}+\frac{3}{6}$

$=\frac{-2}{6}$

$=\frac{-1}{3}$

c) $\frac{7}{4}-\frac{1}{2}$ (×2 / ×2)

$=\frac{7}{4}-\frac{2}{4}$

$=\frac{5}{4}$

d) $-\frac{4}{1}+\frac{5}{3}$ (×3)

$=\frac{-12}{3}+\frac{5}{3}$

$=\frac{-7}{3}$

e) $\frac{9}{2}-\frac{1}{4}$ (×2)

$=\frac{18}{4}-\frac{1}{4}$

$=\frac{17}{4}$

f) $3\frac{1}{3}+\frac{3}{4}$

$=\frac{10}{3}+\frac{3}{4}$ (×4 / ×3)

$=\frac{40}{12}+\frac{9}{12}$

$=\frac{49}{12}$

g) $5\frac{1}{2}+\frac{5}{6}$

$=\frac{11}{2}+\frac{5}{6}$ (×3)

$=\frac{33}{6}+\frac{5}{6}$

$=\frac{38}{6}$

$=\frac{19}{3}$

h) $\frac{7}{10}+\frac{2}{15}$ (×3 / ×2)

$=\frac{21}{30}+\frac{4}{30}$

$=\frac{25}{30}$

$=\frac{5}{6}$

i) $\frac{1}{3}+\frac{3}{12}-\frac{5}{6}$ (×4 / ×2)

$=\frac{4}{12}+\frac{3}{12}-\frac{10}{12}$

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

$=\frac{-1}{4}$

5. Find each product. Express answers in lowest terms.

a) $\frac{-5}{4} \cdot \frac{1}{3}$

$= \frac{-5}{12}$

b) $\frac{4}{9} \cdot \frac{7}{4}$

$= \frac{7}{9}$

c) $\frac{-11}{5} \cdot \frac{-7}{4}$

$= \frac{77}{20}$

d) $\frac{5}{-7} \cdot \frac{2}{5}$

$= -\frac{2}{7}$

e) $\frac{7}{3} \cdot \frac{6^2}{1}$

$= 14$

f) $1\frac{2}{3} \cdot 1\frac{1}{4}$

$= \frac{5}{3} \cdot \frac{5}{4}$

$= \frac{25}{12}$

6. Find each quotient

a) $\frac{-1}{2} \div 7$

$= \frac{-1}{2} \times \frac{1}{7}$

$= \frac{-1}{14}$

b) $\frac{1}{2} \div \frac{8}{7}$

$= \frac{1}{2} \times \frac{7}{8}$

$= \frac{7}{16}$

c) $\frac{1}{9} \div \frac{-4}{3}$

$= \frac{1}{9} \times \frac{3}{-4}$

$= \frac{3}{-36}$

$= -\frac{1}{12}$

d) $\frac{-17}{10} \div \frac{9}{4}$

$= \frac{-17}{10_5} \times \frac{4^2}{9}$

$= \frac{-34}{45}$

e) $\frac{6}{7} \div \frac{7}{6}$

$= \frac{6}{7} \times \frac{6}{7}$

$= \frac{36}{49}$

f) $3\frac{1}{5} \div 2\frac{2}{3}$

$= \frac{16}{5} \div \frac{8}{3}$

$= \frac{2^1 6}{5} \times \frac{3}{1_8}$

$= \frac{6}{5}$

7. The waiters at a restaurant have agreed to give one third of their tips to the kitchen staff. If a waiter collects $72 in tips, how much does he end up keeping?

Tips kept $= 72 - \frac{1}{3}(72)$

$= 72 - 24$

$= 48$

The waiter ends up keeping $48.

8. A ratchet set has sockets labeled $\frac{3}{16}, \frac{1}{4}, \frac{5}{16}$

a) By what fraction are the sockets increasing?

$\frac{1}{4} \overset{\times 4}{} = \frac{4}{16}$ The ratchet sizes are $\frac{3}{16}, \frac{4}{16}, \frac{5}{16}$; ∴ They increase by $\frac{1}{16}$.

b) Calculate the size of the fourth socket in this set (make sure your answer is in lowest terms).

Size of 4th socket $=$ 3rd socket $+ \frac{1}{16}$

$= \frac{5}{16} + \frac{1}{16}$

$= \frac{6}{16}$

$= \frac{3}{8}$

The size of the 4th socket is $\frac{3}{8}$.

9. Mike walked $\frac{7}{8}$ of a kilometer in $\frac{1}{4}$ of an hour. What was his average walking speed per hour?

$\text{Speed} = \frac{\text{distance}}{\text{time}} = \frac{7}{8} \div \frac{1}{4} = \frac{7}{8_2} \times \frac{4^1}{1} = \frac{7}{2} = 3.5 \text{ km/h}$

10. Mr. Jensen made 10 pounds of pizza but he can only eat ¼ of a pound a day. How many days will it take him to eat 10 pounds of pizza?

Days to eat pizza $= 10 \div \frac{1}{4} = 10 \times \frac{4}{1} = 40$

It will take him 40 days.

Part 6: Adding Integers

$+(a\ positive\ integer) \rightarrow +\ the\ positive\ integer$

Rule: # + (+#) changes to # + #

Example 1: 3 + (+5)

Solution:

$3 + (+5) = 3 + 5 = 8$

$+(a\ negative\ integer) \rightarrow -\ the\ opposite$

Rule: # + (−#) changes to # − #

Example 2: 8 + (−3)

Solution:

$8 + (-3) = 8 - 3 = 5$

Part 7: Subtracting Integers

$-(a\ positive\ integer) \rightarrow -\ the\ positive\ integer$

Rule: # − (+#) changes to # − #

Example 1: −5 − (+3)

Solution:

$-5 - (+3) = -5 - 3 = -8$

$-(a\ negative\ integer) \rightarrow +$ the opposite

Rule: # − (−#) changes to # + #

Example 2: 5 − (−9)

Solution:

$5 - (-9) = 5 + 9 = 14$

Part 8: Multiplying Integers/Dividing Integers

Rule: When multiplying or dividing integers with the same signs, the product or the quotient is **positive**.

Example 1: $(-7)(-8)$

Solution:

$(-7)(-8) = 56$

Rule: When multiplying or dividing integers with opposite sign, the product or quotient is **negative**.

Example 2: $63 \div (-9)$

Solution:

$63 \div (-9) = -7$

Activity: Closest to Zero

Rules: Deal 6 cards to each player. Using those cards form a two digit negative number and a two digit positive number. Add them to get your score for the round. Draw four new cards for the next round.

Notice that your score from one round can cancel out your score from before.

If you run out of cards, shuffle in the used cards. A game is five rounds. The player with total score closest to zero is the winner. In case of a tie, play one more round.

Only red cards can be negative and black cards positive. If you only have one card of a color it must be your number. If you have zero cards of a color, that number is zero. The other number must still be 2 digits.

Game Board:

Round 1	Round 2	Round 3	Round 4	Round 5
Positive + Negative = Sum	Positive + Negative = Sum	Positive + Negative = Sum	Positive + Negative = Sum	Positive + Negative = Sum

Total Sum

Practice Parts 6, 7, & 8

Section 1: Adding and Subtracting Integers

11. Evaluate:

a) -3 + (-2)
= -3-2
= -5

b) 2 + (-3)
= 2-3
= -1

c) -8 + 8
= 0

d) -6 - 4
= -10

e) (-4) - (-5)
= -4+5
= 1

f) 2 + (-6)
= 2-6
= -4

g) 5 + (-7)
= 5-7
= -2

h) -3 + 4 -7
= 1-7
= -6

i) -8 – (-4) – (+4)
= -8+4-4
= -8

j) 4 + (-15) – (-15)
= 4-15+15
= 4

k) – 4 – 5 – 6
= -9-6
= -15

l) – 7 – 7 + (-7)
= -14-7
= -21

Circle the expression that has the greatest value:

m) -5 – 3 + 4 (-4), 4 – 3 – (-4) (5), 5 – (-3) (-2) – 10

4-3-(-4)

n) -5 – 2 + 4 (-3), 3 – 12 + 2 (-7), -7 – (-2) + 1 (-4)

-5-2+4

Solve the following word problem:

o) The temperature in Red Rock is 4°C. What is the temperature after a rise of 5°C followed by a fall of 10°C?

Temperature = 4+5-10 = -1°C

Section 2: Multiplying and Dividing Integers

12. Evaluate:

a) (-3)(-2)
= 6

b) 2(-3)
= -6

c) 4(-3)
= -12

d) 5(4)
= 20

e) (-4)(-9)
= 36

f) (-3)(6)(-12)
= (-18)(-12)
= 216

g) 49 ÷ (-7)
= -7

h) (-91) ÷ (-13)
= 7

i) -18 ÷ 18
= -1

j) -24 ÷ (-6)
= 4

k) -81 ÷ (-27)
= 3

l) 51 ÷ (-17)
= -3

Solve the following word problems:

13. You owe the school $50 for a lost math book. The school has set up a payment program that will allow you to pay back the debt in 5 equal payments. How much will you have to pay for each payment?

$\text{Payments} = \frac{50}{5} = 10$

You will have to pay $10 each payment.

14. The lowest recorded temperatures for three days in London are listed. Find the average low temperature for these days.

Monday –8°C
Tuesday –10°C
Wednesday –14°C
Thursday –4°C

$\text{Average Temp} = \frac{-8+(-10)+(-14)+(-4)}{4}$

$= \frac{-36}{4}$

$= -9$

The average temp is $-9°C$.

15. In a magic square, each row, column, and diagonal has the same sum. Find the integers that complete this magic square.

+4	-1	0
-3	+1	5
+2	3	−2

16. Ron divides 24 by a number. The quotient is −48. What is the number?

$\frac{24}{x} = -48$

$\frac{24}{-48} = x$

$-\frac{1}{2} = x$

The number is $-\frac{1}{2}$.

Part 9: Rounding

Fill in the missing place values:

Rounding a numerical value means replacing it by another value that is approximately equal but has a shorter, simpler, or more explicit representation

Steps for Rounding:

1) Determine the place to round to
2) Look at the digit to the right of the rounding place
3) Determine to round up or down (5 or greater round up)
4) Round up or down and change all digits to the right to zero

Example 1: Round 4.56732 to the nearest tenth

Solution: $4.56732 \cong 4.6$

Example 2: Round 20 348 to the nearest thousand

Solution: $20\,348 \cong 20\,000$

Part 10: Percent

A percentage is a way of expressing a number, especially a ratio, as a **fraction of 100**.

Ratio to Percent Rule: The percent value is computed by multiplying the numeric value of the ratio by 100.

Example 1: Write the ratio $\frac{3}{17}$ and $\frac{19}{20}$ as a percent

Solution:

$\frac{3}{17} \cong 0.1765 = 17.65\%$

$\frac{19}{20} = 0.95 = 95\%$

Percent as a Decimal Rule: To write a percentage as a decimal; divide the percentage by 100.

Example 2: Write 7% and 52% as a decimal

Solution:

$7\% = \frac{7}{100} = 0.07$ $52\% = \frac{52}{100} = 0.52$

Finding % of Number Rule: Change % to decimal and then multiply by the number.

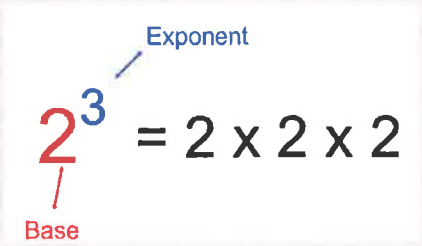
Example 3: Find 35% of 90 (then for fun, find 90% of 35)

Solution:

$35\%\ of\ 90 = 0.35 \times 90 = 31.5$
$90\%\ of\ 35 = 0.9 \times 35 = 31.5$

Part 11: Exponents

Repeated **multiplication** of the same number by itself can be expressed as a power. The number is said to be in exponential form.



Example 1: Express (3)(3)(3)(3) as a power

Solution: 3^4

Example 2: Write 6^5 in expanded form

Solution: (6)(6)(6)(6)(6)

Example 3: Evaluate 2^5, $(-4)^2$, -4^2, and $(-2)^3$ with and without a calculator

Solution:

$2^5 = 32$ $(-4)^2 = 16$ $-4^2 = -16$ $(-2)^3 = -8$

Part 12: Square Root

The square root of a number is the number that multiplies by **itself** to give a required value. The square root symbol is $\sqrt{}$

Example 1: Evaluate $\sqrt{36}$, and $\sqrt{169}$ with and without a calculator.

Solution:

$\sqrt{36} = 6$ $\sqrt{169} = 13$

Practice Parts 9, 10, 11, & 12

17. Round each number as indicated

a) 17 423 to the nearest thousand

~17 000

b) 73.86 to the nearest one

~74

c) 0.846 to the nearest hundredth

~0.85

d) 205 481 to the nearest ten

~205 480

e) 439.551 to the nearest tenth

~439.6

f) 2.3987 to the nearest thousandth

~2.399

18. Round to the value indicated

a) Round 948 596 km to the nearest thousand kilometres. ~949 000 km

b) Round 1923 km to the nearest ten kilometres. ~1920 km

c) Round 4.96 m to the nearest tenth of a metre. ~5.0 m

d) Round 3953.9 m to the nearest metre. ~3954 m

e) Round 5689 g to the nearest hundred grams. ~5700 g

f) Round 79.861 kg to the nearest hundredth of a kilogram. ~79.86 kg

19. Complete the chart:

Fraction	Decimal	Percent
$\frac{3}{15} = \frac{1}{5}$	0.2	20 %
$\frac{17}{20}$	0.85	85 %
$\frac{23}{40}$	0.575	57.5 %
$\frac{30}{100} = \frac{3}{10}$	0.3	30 %
$\frac{15}{100} = \frac{3}{20}$	0.15	15 %
$\frac{5}{100} = \frac{1}{20}$	0.05	5 %
$\frac{50}{100} = \frac{1}{2}$	0.5	50%
$\frac{80}{100} = \frac{4}{5}$	0.8	80%
$\frac{34}{100} = \frac{17}{50}$	0.34	34%

20. 27% of the books in the school library are hardcover. If there are 7200 books in the school library, how many are hardcover?

# of hardcover = 7200 x 0.27

= 1944

21. Mr. Jensen bought a new hockey stick for $250. How much did he pay including the 13% tax?

Cost = 1.13 X 250

= $282.50

22. Mr. Jensen's shooting percentage during last year's hockey season was 40%. Mr. Jensen took 250 shots throughout the season. How many goals did he score? Did he break Wayne Gretzky's record of 92 goals in one season?

Goals = 250 x 0.4

= 100.

Yes he broke the record.

23. Write each expression as a power.
Do not evaluate.

a) $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

$= 2^7$

b) $10 \times 10 \times 10$

$= 10^3$

c) $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$

$= 3^9$

24. Write each power in expanded form.
Do not evaluate.

a) $5^3 = 5 \times 5 \times 5$

b) $15^4 = 15 \times 15 \times 15 \times 15$

c) $7^7 = 7 \times 7 \times 7 \times 7 \times 7 \times 7 \times 7$

25. Evaluate each power using a calculator

a) $7^5 = 16807$

b) $3^8 = 6561$

c) $(-12)^4 = 20736$

d) $6^5 = 7776$

e) $-1.4^2 = -1.96$

f) $5.7^3 = 185.193$

26. Find each square root without using a calculator

a) $\sqrt{4} = 2$

b) $\sqrt{49} = 7$

c) $\sqrt{144} = 12$

d) $\sqrt{169} = 13$

e) $\sqrt{225} = 15$

f) $\sqrt{1} = 1$

27. On a TV game show, you are offered three choices for a prize, in dollars.

A - double your age, squared
B - 2 to the exponent of your age
C - the square root of your age, cubed

Which offer would you take and why?

B gives the most money.

Part 13: Order of Operations

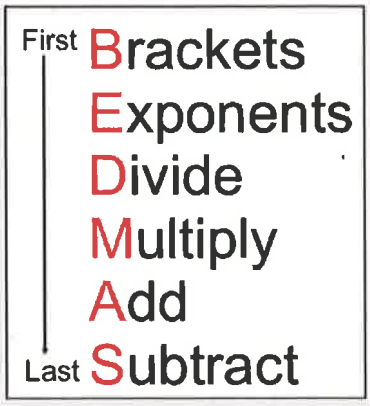
Minds On: Why do we need a specific order of operations to follow?

Which one of the following is correct?

$7 - 5(12)$
$= 2(12)$
$= 24$

$7 - 5(12)$
$= 7 - 60$
$= -53$

Use the order of operations to evaluate expressions:



Note:

- Order of multiplication and division goes from left to right
- Order of addition and subtraction goes from left to right

Example 1: $10 + (-3)(4) - (-11)$

Solution:

$10 + (-3)(4) - 11$
$= 10 + (-12) + 11$
$= 10 - 12 + 11$
$= 9$

Example 2: $7^2 - 3(4^2 + 10)$

Solution:

$7^2 - 3(4^2 + 10)$
$= 49 - 3(16 + 10)$
$= 49 - 3(26)$
$= 49 - 78$
$= -29$

Example 3: $[2-(6+3)^2]^2$

Solution:

$[2-(6+3)^2]^2$
$= [2-(9)^2]^2$
$= [2-81]^2$
$= [-79]^2$
$= 6241$

Example 4: At a collector's fair, Jason sold six sports cards at \$56 each and bought eight sports cards at \$43 each. What was Jason's net profit or loss?

Solution:

$Profit\ or\ loss\ = 6(56) - 8(43) = 336 - 344 = -8$

Jason's loss was \$8.

Practice:

Evaluate each expression (don't forget BEDMAS)

28) (30-3) ÷ 3

$= 27 \div 3$
$= 9$

29) (21-5) ÷ 8

$= 16 \div 8$
$= 2$

30) $1 + 7^2$

$= 1 + 49$
$= 50$

31) $5(4) - 8$

$= 20 - 8$
$= 12$

32) $8 + 6(9)$

$= 8 + 54$
$= 62$

33) $3 + 17(5)$

$= 3 + 85$
$= 88$

34) $15 + 40 \div (-20)$

$= 15 + (-2)$

$= 15 - 2$

$= 13$

35) $9(3+3) \div 6$

$= 9(6) \div 6$

$= 54 \div 6$

$= 9$

36) $(9 + 18 - 3) \div 8$

$= 24 \div 8$

$= 3$

37) $4(4 \div 2 + 4) + (-9)^2$

$= 4(6) + 81$

$= 24 + 81$

$= 105$

38) $[\,9(-2)\,] \div (2+1)$

$= (-18) \div (3)$

$= -6$

39) $[9(2)\,] \div 2 + (-1)$

$= (18) \div 2 - 1$

$= 9 - 1$

$= 8$

40) $9 - 7 - 6 \div 6$

$= 9 - 7 - 1$

$= 1$

41) $[\,10(2)\,] \div (1 + 1)$

$= (20) \div (2)$

$= 10$

42) $7(9) - 7 - 3(5)$

$= 63 - 7 - 15$

$= 41$

43) $8 - 1 - (18 - 2) \div (-8)$

$= 8 - 1 - 16 \div (-8)$

$= 8 - 1 + 2$

$= 9$

44) $\frac{1}{4} \times (16 \times 3) + 25 \div 5$

$= \frac{1}{4}(48) + 5$

$= 12 + 5$

$= 17$

45) $(5 + 3^2) \div (2^4 \div 2^3)$

$= (5+9) \div (16 \div 8)$

$= 14 \div 2$

$= 7$

46) $7 + \sqrt{20-(5-1)^2}$

$= 7 + \sqrt{20-(4)^2}$

$= 7 + \sqrt{20-16}$

$= 7 + \sqrt{4}$

$= 9$

47) $8 + 5(4-1)^3 - 10^2$

$= 8 + 5(3)^3 - 10^2$

$= 8 + 5(27) - 100$

$= 8 + 135 - 100$

$= 43$

48) $\frac{800}{500} + \left(\frac{-2}{5}\right)\left(\frac{3}{4}\right)$

$= \frac{8}{5} + \left(\frac{-6}{20}\right)$

$= \frac{32}{20} - \frac{6}{20}$

$= \frac{26}{20}$

$= \frac{13}{10}$

49) $2 + \left(\frac{-2}{5}\right) \div \left(\frac{8}{15}\right) - \frac{3}{4}$

$= 2 + \left(\frac{-2}{1}\right)\left(\frac{3}{8}\right) - \frac{3}{4}$

$= 2 - \frac{6}{8} - \frac{3}{4}$

$= \frac{8}{4} - \frac{3}{4} - \frac{3}{4}$

$= \frac{2}{4}$

$= \frac{1}{2}$

50) Insert brackets in to each of the following equations to make them true

a) $3 + 2[(15) - 7] = 19$

b) $15 \div [5 - 10] \times 3^2 = -27$

Extension Section

Part 1: Simplifying Polynomial Expressions

51) $2x - 3y - 4 + 5y - 7$

$= 2x - 3y + 5y - 4 - 7$

$= 2x + 2y - 11$

52) $3x^2 + 2x - 5x + 7 - x^2$

$= 3x^2 - 1x^2 + 2x - 5x + 7$

$= 2x^2 - 3x + 7$

53) $3(2x + 7)$

$= 6x + 21$

54) $2x(5x^2 - 4) + 3(x^3 - 3x)$

$= 10x^3 - 8x + 3x^3 - 9x$

$= 10x^3 + 3x^3 - 8x - 9x$

$= 13x^3 - 17x$

Part 2: Solving Equations

55) $\frac{2x}{2} = \frac{10}{2}$

$x = 5$

56) $x - 2 = 9$ (+2)

$x = 9 + 2$

$x = 11$

57) $\frac{1}{2}x - 5 = 2$

$\frac{1}{2}x = 2 + 5$

$(2)\frac{1}{2}x = 7(2)$

$x = 14$

58) $6 - 2k = 18$

$-2k = 18 - 6$

$\frac{-2k}{-2} = \frac{12}{-2}$

$k = -6$

59) $4(x + 2) + 3x = 18$

$4x + 8 + 3x = 18$

$4x + 3x = 18 - 8$

$\frac{7x}{7} = \frac{10}{7}$

$x = \frac{10}{7}$

60) $\frac{2}{3}(4x - 5) = \frac{1}{9}(6 - 3x)$

$9(\frac{2}{3})(4x - 5) = 9(\frac{1}{9})(6 - 3x)$

$6(4x - 5) = 1(6 - 3x)$

$24x - 30 = 6 - 3x$

$24x + 3x = 6 + 30$

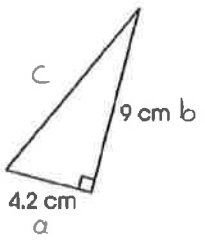
$\frac{27x}{27} = \frac{36}{27}$

$x = \frac{4}{3}$

Part 3: Pythagorean Theorem.

61) Find the length of the third side of each triangle

a)



$a^2 + b^2 = c^2$

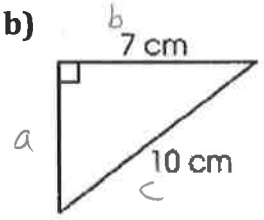
$(4.2)^2 + (9)^2 = c^2$

$c^2 = 98.64$

$c = \sqrt{98.64}$

$c \simeq 9.93$ cm

b)



$a^2 + b^2 = c^2$

$a^2 + (7)^2 = 10^2$

$a^2 = 10^2 - 7^2$

$a^2 = 51$

$a = \sqrt{51}$

$a \simeq 7.14$ cm

Topic	Score	%*	Self Assessment
Fractions (Parts 1 – 5)	**/ 37**		**1 2 3 4**
Integers (Parts 6 – 8)	**/ 31**		**1 2 3 4**
Rounding, Percent, Exponents (Part 9 – 12)	**/ 52**		**1 2 3 4**
Order of Operations (Part 13)	**/ 24**		**1 2 3 4**
Total	**/ 144**		**1 2 3 4**

[1 — not confident, need help learning this topic; 2 — need some extra practice; 3 — confident; 4 — expert]

Comments: