

Review of Pre-Requisite Skills

MPM1D

Jensen

SOLUTIONS

Section 1: Integers

1) Evaluate each of the following (without a calculator)

$$\begin{aligned} \text{a) } 5 - (-6) \\ &= 5 + 6 \\ &= 11 \end{aligned}$$

$$\begin{aligned} \text{b) } 6 - (-3) \\ &= 6 + 3 \\ &= 9 \end{aligned}$$

$$\begin{aligned} \text{c) } 2 + (-1) \\ &= 2 - 1 \\ &= 1 \end{aligned}$$

$$\begin{aligned} \text{d) } (-2) - (-1) \\ &= -2 + 1 \\ &= -1 \end{aligned}$$

$$\begin{aligned} \text{e) } (-6) + 3 \\ &= -3 \end{aligned}$$

$$\begin{aligned} \text{f) } (-5) + 7 \\ &= 2 \end{aligned}$$

$$\begin{aligned} \text{g) } (-7) - 1 - (-1) \\ &= -7 - 1 + 1 \\ &= -7 \end{aligned}$$

$$\begin{aligned} \text{h) } (-8) - (-8) - 6 \\ &= -8 + 8 - 6 \\ &= -6 \end{aligned}$$

$$\begin{aligned} \text{i) } 3 - (-4) - 3 \\ &= 3 + 4 - 3 \\ &= 4 \end{aligned}$$

$$\begin{aligned} \text{j) } (-2) + 4 + 7 + (-3) \\ &= -2 + 4 + 7 - 3 \\ &= 6 \end{aligned}$$

$$\begin{aligned} \text{k) } 6 + (-1) - (-6) \\ &= 6 - 1 + 6 \\ &= 11 \end{aligned}$$

$$\begin{aligned} \text{l) } 7 + 8 + (-4) + (-7) \\ &= 7 + 8 - 4 - 7 \\ &= 4 \end{aligned}$$

2) Evaluate each of the following (without a calculator)

$$\begin{aligned} \text{a) } (-5)(10) \\ &= -50 \end{aligned}$$

$$\begin{aligned} \text{b) } (7)(-7) \\ &= -49 \end{aligned}$$

$$\begin{aligned} \text{c) } (7)(-1) \\ &= -7 \end{aligned}$$

$$\begin{aligned} \text{d) } (-6)(-6) \\ &= 36 \end{aligned}$$

$$\begin{aligned} \text{e) } (8)(-2) \\ &= -16 \end{aligned}$$

$$\begin{aligned} \text{f) } (-10)(-3) \\ &= 30 \end{aligned}$$

$$\begin{aligned} \text{g) } (-8)(-2) \\ &= 16 \end{aligned}$$

$$\begin{aligned} \text{h) } (-9)(3) \\ &= -27 \end{aligned}$$

$$\begin{aligned} \text{i) } (6)(-3)(-5) \\ &= 6(15) \\ &= 90 \end{aligned}$$

$$\begin{aligned} \text{j) } (-9)(2)(-6) \\ &= (-18)(-6) \\ &= 108 \end{aligned}$$

$$\begin{aligned} \text{k) } (-2)(-5)(-7)(4) \\ &= (10)(-28) \\ &= -280 \end{aligned}$$

$$\begin{aligned} \text{l) } (4)(-7)(1)(-10) \\ &= (-28)(-10) \\ &= 280 \end{aligned}$$

3) Evaluate each of the following (without a calculator)

$$\text{a) } \frac{-70}{-10} = 7$$

$$\text{b) } \frac{36}{-4} = -9$$

$$\text{c) } \frac{18}{3} = 6$$

$$\text{d) } -72 \div -9 = 8$$

4) Convert each mixed fraction to an improper fraction

$$\text{a) } 1\frac{1}{9} = \frac{1(9)+1}{9} = \frac{10}{9}$$

$$\text{b) } 2\frac{2}{7} = \frac{2(7)+2}{7} = \frac{16}{7}$$

5) Mt. Everest, the highest elevation in Asia, is 29,028 feet above sea level. The Dead Sea, the lowest elevation, is 1,312 feet below sea level. What is the difference between these two elevations?

$$\begin{aligned} \text{Difference in elevation} &= 29028 - (-1312) \\ &= 29028 + 1312 \\ &= 30340 \text{ feet.} \end{aligned}$$

6) You owe \$225 on your credit card. You make a \$55 payment and then purchase \$87 worth of clothes at Dillard's. What is the integer that represents the balance owed on the credit card?

$$\begin{aligned} \text{Balance} &= -225 + 55 - 87 \\ &= -257 \end{aligned}$$

You owe \$257.

7) James plays in the backfield of the Big Town football team. Last week he ran five plays from the running back position. He made gains measured in yards of 3, 4, 12, and 5 but had one run where he lost 4 yards. What were his average yards gained per carry?

$$\text{Average Yards Gained} = \frac{3+4+12+5+(-4)}{5} = \frac{20}{5} = 4$$

He averaged a gain of 4 yards.

Section 2: Fractions

4) Add or subtract as shown.

$$\begin{aligned} \text{a) } \frac{3}{8} + \frac{7}{8} \\ &= \frac{10}{8} \\ &= \frac{5}{4} \end{aligned}$$

$$\begin{aligned} \text{b) } \frac{2 \times 4}{3 \times 4} + \frac{3 \times 3}{4 \times 3} \\ &= \frac{8}{12} + \frac{9}{12} \\ &= \frac{17}{12} \end{aligned}$$

$$\begin{aligned} \text{c) } \frac{3}{32} + \frac{1 \times 4}{8 \times 4} \\ &= \frac{3}{32} + \frac{4}{32} \\ &= \frac{7}{32} \end{aligned}$$

$$\begin{aligned} \text{d) } \frac{3 \times 6}{5 \times 6} + \frac{5 \times 5}{6 \times 5} \\ &= \frac{18}{30} + \frac{25}{30} \\ &= \frac{43}{30} \end{aligned}$$

$$\begin{aligned} \text{e) } \frac{11}{16} - \frac{1 \times 4}{4 \times 4} \\ = \frac{11}{16} - \frac{4}{16} \\ = \frac{7}{16} \end{aligned}$$

$$\begin{aligned} \text{f) } \frac{5 \times 5}{6 \times 5} - \frac{1 \times 6}{5 \times 6} \\ = \frac{25}{30} - \frac{6}{30} \\ = \frac{19}{30} \end{aligned}$$

$$\begin{aligned} \text{g) } \frac{7 \times 5}{8 \times 5} - \frac{3 \times 4}{10 \times 4} \\ = \frac{35}{40} - \frac{12}{40} \\ = \frac{23}{40} \end{aligned}$$

$$\begin{aligned} \text{h) } 1\frac{1}{2} - \frac{3}{32} \\ = \frac{3 \times 16}{2 \times 16} - \frac{3}{32} \\ = \frac{48}{32} - \frac{3}{32} \\ = \frac{45}{32} \end{aligned}$$

5) Multiply or Divide as shown

$$\begin{aligned} \text{a) } \frac{2}{9} \times \frac{1}{2} \\ = \frac{2}{18} \\ = \frac{1}{9} \end{aligned}$$

$$\begin{aligned} \text{b) } \frac{7}{10} \times \frac{2}{5} \\ = \frac{14}{50} \\ = \frac{7}{25} \end{aligned}$$

$$\begin{aligned} \text{c) } \frac{3}{8} \times \frac{2}{7} \\ = \frac{6}{56} \\ = \frac{3}{28} \end{aligned}$$

$$\begin{aligned} \text{d) } \frac{3}{4} \times \frac{2}{3} \\ = \frac{6}{12} \\ = \frac{1}{2} \end{aligned}$$

$$\begin{aligned} \text{e) } \frac{2}{3} \div 4 \\ = \frac{2}{3} \times \frac{1}{4} \\ = \frac{2}{12} \\ = \frac{1}{6} \end{aligned}$$

$$\begin{aligned} \text{f) } \frac{2}{5} \div \frac{1}{2} \\ = \frac{2}{5} \times \frac{2}{1} \\ = \frac{4}{5} \end{aligned}$$

$$\begin{aligned} \text{g) } \frac{8}{3} \div \frac{2}{3} \\ = \frac{8}{3} \times \frac{3}{2} \\ = \frac{24}{6} \\ = 4 \end{aligned}$$

$$\begin{aligned} \text{h) } \frac{2}{9} \div \frac{1}{3} \\ = \frac{2}{9} \times \frac{3}{1} \\ = \frac{6}{9} \\ = \frac{2}{3} \end{aligned}$$

6) For a family party, Tanisha made $\frac{2}{5}$ of the desserts. If a total of 40 desserts were brought to the party, how many did Tanisha supply?

$$\text{Tanisha supplied } \frac{2}{5}(40) = \frac{80}{5} = 16 \text{ desserts.}$$

Section 3: Rounding

7) Round to the value indicated

a) Round 948 596 km to the nearest hundred kilometers: 948 600 km

b) Round 9 994 km to the nearest thousand kilometers: 10 000 km

c) Round 1.4537 m to the nearest thousandth of a meter: 1.454 m

d) Round 71.6635 kg to the nearest tenth of a kilogram: 71.7 kg

Section 4: Percent

8) Complete the following chart

Fraction	Decimal	Percent
$\frac{80}{100} = \frac{8}{10} = \frac{4}{5}$	0.8	80%
$\frac{5}{100} = \frac{1}{20}$	0.05	5%
$\frac{3}{25} = \frac{12}{100}$	0.12	12%

Section 5: Powers

9) Complete the following chart

Power	Base	Exponent	Standard Form
4^2	4	2	16
5^3	5	3	125
8^3	8	3	512
10^7	10	7	10 000 000

10) Write each power in expanded form.

a) $5^3 = (5)(5)(5)$

b) $8^5 = (8)(8)(8)(8)(8)$

11) Write each product as a power

a) $3 \times 3 \times 3 \times 3$

$= 3^4$

b) $(-2)(-2)(-2)$

$= (-2)^3$

12) Evaluate each of the following

a) $3^4 = 81$

b) $10^5 = 100\,000$

c) $\sqrt{121} = 11$

d) $\sqrt{25} = 5$

Section 6: BEDMAS

13) Fill in the blanks

B - RACKETS

E - EXPONENTS

D - DIVISION

M - MULTIPLICATION

A - ADDITION

S - SUBTRACTION

14) Answer the following showing all your steps (3 marks each)

a) $7 \times (10 - 2 + 7)$

$$= 7 \times (15)$$

$$= 105$$

b) $(10 + 5) \times 4 \div 5 + 8 \times 7$

$$= (15)(4) \div 5 + 8(7)$$

$$= 60 \div 5 + 56$$

$$= 12 + 56$$

$$= 68$$

c) $6^3 - 3 \times 4 + 6 \times (3 + 2)$

$$= 216 - 12 + 6(5)$$

$$= 216 - 12 + 30$$

$$= 234$$

d) $(4 + 8) \div 3 + 9(19 - 3^2) \div 30$

$$= (12) \div 3 + 9(19 - 9) \div 30$$

$$= 4 + 9(10) \div 30$$

$$= 4 + 90 \div 30$$

$$= 4 + 3$$

$$= 7$$

16) A computer store is offering two deals. One deal, you get the computer system for \$1299.50 cash. The other deal you get the computer system for \$124.90/month for twelve months. Which is the better deal and by how much?

$$\text{Deal 1} - \text{Deal 2} = 1299.50 - 124.90(12)$$

$$= 1299.50 - 1498.80$$

$$= -199.30$$

Deal 1 is \$199.30 cheaper.