Class / Homework

Page 140 & 141

Questions
3,
4,
6ac
7 a,b d
8 a,b
10
11a
12 a,d
13 a,d

3. Evaluate. Do not use a calculator.

a) $2.3 - (-1.6) \times (0.8)$

b) $(-14.8) \times 0.9 - 3.1$

c) $(-12.8) \div (-0.2) + 4.5 \div 0.5$

d) $(-4.8) \times (-0.4 + 0.6)^2$

Homework Solutions pg 140

3a) $2.3 - (-1.6) \times 0.8$

$= 2.3 - (-1.28)$

$= 3.58$

3b) $(-14.8) \times 0.9 - 3.1$

$-13.32 - 3.1$

-16.42

3c) $(-12.8) \div (-0.2) + 4.5 \div 0.5$

$+ 4.5 \div 0.5$

$= 64 + 9$

$= 64 + 9$

$= 73$

3d) $(-4.8) \times (-0.4 + 0.6)^2$

$= (-4.8) \times (0.2)^2$

$= (-4.8) \times 0.04$

$= -0.192$

4a) $\frac{1}{2} + \frac{-3}{4} \times \frac{1}{3}$

$= \frac{1}{2} + \frac{-3}{12}$

$= \frac{6}{12} + \frac{-3}{12}$

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

$= \frac{1}{4}$

4b) $\left(\frac{-5}{4}\right) \div \left(\frac{-1}{4} + \frac{3}{2}\right) \times \left(\frac{-1}{4} + \frac{3}{2}\right)$

$= \left(\frac{-5}{4}\right) \div \left(\frac{-1}{4} + \frac{6}{4}\right) \times \left(\frac{-1}{4} + \frac{6}{4}\right)$

$= \frac{-5}{4} \div \left(\frac{5}{4}\right) \times \left(\frac{5}{4}\right)$

common denominator already so divide top w top

$= \frac{-1}{1} \times \frac{5}{4}$

$= \frac{-5}{4}$

4. Evaluate. Do not use a calculator.

a) $\frac{1}{2} + \left(-\frac{3}{4}\right) \times \frac{1}{3}$

BEDMAS

$= \frac{1}{2} + \left[-\frac{3}{12}\right]$

$= \frac{6}{12} + \frac{-3}{12}$

a b/c

$= 3/12$

$= \frac{1}{4}$

c) $\left(-\frac{7}{10}\right) \div \left(-\frac{2}{5}\right) - \left(-\frac{1}{4}\right) \times \frac{1}{2}$

d) $\frac{6}{5} \times \left(-\frac{2}{3} + \frac{8}{3}\right)^2 - \frac{5}{12}$

~~BEDMAS~~ BEDMAS

b) $\left(-\frac{5}{4}\right) \div \left(-\frac{1}{4}+\frac{3}{2}\right)\left(-\frac{1}{4}+\frac{3}{2}\right)$

$\left(\frac{-5}{4}\right) \div \left(\frac{-1}{4}+\frac{6}{4}\right)\left(\frac{-1}{4}+\frac{6}{4}\right)$

$\frac{-5}{4} \div \left(\frac{5}{4}\right) \times \left(\frac{5}{4}\right)$

$\frac{-5}{4} \times \frac{4}{5} \times \frac{5}{4}$

$-\frac{20}{20} \times \frac{5}{4}$

$= \frac{-1}{1} \times \frac{1}{1} \times \frac{5}{4}$

$= \frac{-5}{4}$

c) $\left(-\frac{7}{10}\right) \div \left(-\frac{2}{5}\right) - \left(-\frac{1}{4}\right) \times \frac{1}{2}$

$\frac{-7}{10} \times \frac{-5}{2} - \left(\frac{-1}{4}\right) \times \frac{1}{2}$

$\frac{7}{4} - \left(\frac{1}{8}\right)$

$\frac{14}{8} + \left(\frac{-1}{8}\right)$

$= \frac{15}{8}$

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

d) $\frac{6}{5} \times \left(-\frac{2}{3} + \frac{8}{3}\right)^2 - \frac{5}{12}$

$\frac{6}{5} \times \left[\frac{6}{3} \right]^2 - \frac{5}{12}$

$\frac{6}{5} \times \left[\frac{2}{1} \right]^2 - \frac{5}{12}$

$\frac{6}{5} \times \left[\frac{4}{1} \right] - \frac{5}{12}$

$\frac{24}{5} - \frac{5}{12}$

$\frac{288}{60} - \frac{25}{60}$

$= \frac{263}{60}$

5. a) Use a calculator to evaluate the expression below. Key in the expression as it is written.

$-2.8 - 1.4 \times 4.5$

$-2.8 \quad -6.3$

$= -9.1$

b) Does the calculator follow the order of operations or does it perform operations from left to right? How did you find out?

6. Estimate which expression has the greatest value. Then use a calculator to evaluate each expression to verify your prediction.

a) $9.1 - 3.5 \times (4.2)^2$

$9.1 - 3.5 \times (17.64)$

$9.1 - 61.74$

$= -52.64$

b) $(9.1 - 3.5) \times (4.2)^2$

$5.6 \times (4.2)^2$

5.6×17.64

$= 98.784$

c) $9.1 - (3.5 \times 4.2)^2$

$9.1 - (14.7)^2$

$= 9.1 - 216.09$

$= -206.99$

d) $9.1[(-3.5) \times (4.2)^2]$

$9.1[(-3.5) \times 17.64]$

$9.1[-61.74]$

$= -561.834$

7. Evaluate.

a) [redacted] $+ \frac{1}{2} \times \frac{1}{2} \times \frac{1}{3}$

a) $\left(\frac{-2}{3}\right) \div \frac{1}{4} + \frac{1}{2} \times \frac{1}{2} \times \frac{1}{3}$

[redacted] $+$ [redacted] $\times \frac{1}{3}$

$= \frac{-8}{3} + \frac{1}{4}$

$= \frac{-8}{3} + \frac{1}{12}$

$\frac{-32}{12} + \frac{1}{12}$

$= \frac{-31}{12}$

b) $\left(-\frac{2}{3}\right) \div \left[\frac{1}{4} + \left(-\frac{1}{2}\right)\right] \times \frac{1}{3}$

$\left(\frac{-2}{3}\right) \div \left[\frac{1}{4} + \frac{-2}{4}\right] \times \frac{1}{3}$

$\left(\frac{-2}{3}\right) \div \left[\frac{-1}{4}\right] \times \frac{1}{3}$

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

$\frac{8}{3} \times \frac{1}{3}$

$= \frac{8}{9}$

d) $\left(-\frac{2}{3}\right) \div \left[\frac{1}{4} + \left(-\frac{1}{2}\right) \times \frac{1}{3}\right]$

7d) $\left(\frac{-2}{3}\right) \div$ [redacted]

$\frac{-2}{3} \div \left[\frac{1}{4} \cdot \frac{-1}{6}\right]$

$\frac{-2}{3} \div \left[\frac{3}{12} + \frac{-2}{12}\right]$

$\frac{-2}{3} \div \left[\frac{1}{12}\right]$

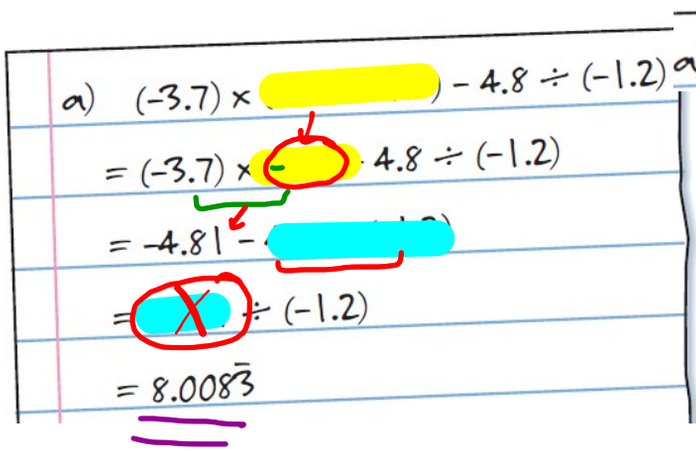
$\frac{-2}{3} \times \frac{12}{1}$

$\frac{-2}{3_1} \times \frac{12^4}{1}$

$\frac{-2 \times 4}{1 \times 1}$

$= -8$

Find the errors in each solution. BEDMAS
Write the correct solution.



a) $(-3.7) \times (-2.8 + 1.5) - 4.8 \div (-1.2)$

$(-3.7) \times (-1.3) - 4.8 \div (-1.2)$

$4.81 - 4.8 \div (-1.2)$

$4.81 - (-4)$

$= 8.81$

b) $-\frac{3}{8} - \frac{4}{5} \times \frac{3}{10} \div \left(-\frac{4}{5}\right)$

$= -\frac{15}{40} - \frac{32}{40} \times \frac{3}{10} \div \left(-\frac{4}{5}\right)$

$= -\frac{47}{40} \times \frac{3}{10} \div \left(-\frac{4}{5}\right)$

$= -\frac{141}{400} \div \left(-\frac{4}{5}\right)$

$= -\frac{141}{400} \times \left(-\frac{5}{4}\right)$

$= \frac{(-141) \times (-5)}{400 \times 4}$

$= \frac{705}{1600}$

$-\frac{3}{8} - \frac{4}{5} \times \frac{3}{10} \left(\frac{-4}{5}\right)$

$-\frac{3}{8} - \frac{4^{2}}{5} \times \frac{3}{\cancel{10}_{5}} \left(\frac{-4}{5}\right)$

$\frac{2}{5} \times \frac{3}{5}$

$-\frac{3}{8} - \frac{6}{25} \left(\frac{-4}{5}\right)$

$-5\frac{\cancel{6}^{3}}{\cancel{25}} \times -\frac{\cancel{5}^{1}}{\cancel{4}_{2}}$

$-\frac{3}{8} - \frac{3}{5} \times \frac{-1}{2}$

$\frac{3}{8} - \frac{-3}{10}$

$\frac{-15}{40} + + \frac{12}{40}$

$= -3/40$

10. A can of soup is a cylinder with radius 3.5 cm and height 11.5 cm.

$SA = 2\pi r^2 + 2\pi r h$

$= 2(3.14)(3.5)^2 + 2(3.14)(3.5)(11.5)$

$= 2(3.14)(3.5)^2 + 2(3.14)(3.5)(11.5)$

$= 2(3.14)(12.25) + 252.77$

$= 76.93 + 252.77$

$= 329.7\ cm^2$

Use the formula:
Surface area $= 2\pi r^2 + 2\pi r \times$ height,
where r is the radius of the can

a) Determine the area of tin needed to make the can, to the nearest square centimetre.

b) Explain how you used the order of operations in part a.

11a) $C = \frac{F-32}{1.8}$

i) $C = \frac{0-32}{1.8}$

$C = \frac{-32}{1.8}$

$C = -17.7$

ii) $C = \frac{-40-32}{1.8}$

$C = \frac{-72}{1.8}$

$C = 40$

iii) $C = \frac{-53-32}{1.8}$

$C = \frac{-85}{1.8}$

$C = -47.2$

12. Evaluate. State the order in which you carried out the operations.

a) $\left(-4\frac{1}{2}\right) + \left(-\frac{2}{3}\right) \times 2\frac{3}{4}$

$= \left(\frac{-9}{2}\right) + \left(\frac{-2}{3}\right) \times \left(\frac{11}{4}\right)$

$= \frac{-9}{2} + \frac{-1}{-2\!\!\!/_{3}} \times \frac{11}{4\!\!\!/_{2}}$

$= -\frac{9}{2} + \left(\frac{-11}{6}\right)$

$= \frac{-27}{6} + \frac{-11}{6}$

$= \frac{-38}{6}$

$= \frac{-19}{3}$

$= -6\frac{1}{3}$

12 d) $\left(1\frac{5}{8}\right) - \left(-2\frac{3}{4} + 2\right)\left(-2\frac{3}{4} + 2\right)$

$= \frac{13}{8} - \left(\frac{-11}{4} + \frac{2}{1}\right)\left(\frac{-11}{4} + \frac{2}{1}\right)$

$= \frac{13}{8} - \left(\frac{-11}{4} + \frac{8}{4}\right)\left(\frac{-11}{4} + \frac{8}{4}\right)$

$= \frac{13}{8} - \left(\frac{-3}{4}\right)\left(\frac{-3}{4}\right)$

$= \frac{13}{8} - \left(\frac{9}{16}\right)$

$= \frac{26}{16} - \frac{9}{16}$

$= \frac{17}{16}$

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

13. Use a calculator to evaluate. Write the answers to the nearest hundredth where necessary.

a) $2.3 + (-11.2) \div (-0.2) - 3.7$

d) $\dfrac{8.9 \times (-3.1 + 22.7)^2 + 4.7}{(-9.6) \div 0.04 - 0.4}$

Top $8.9(-3.1 + 22.7)^2 + 4.7$

$8.9 \times (19.6)^2 + 4.7$

$8.9 \times (384.16) + 4.7$

$3419.024 + 4.7$

3423.724

Bottom

$-9.6 \div 0.04 - 0.4$

$-240 - 0.4$

-240.4

$$\frac{3423.724}{-240.4}$$

$= -14.241780\ldots$

17. A student's solution to a problem, to the nearest hundredth, is shown below. The solution is incorrect. Identify the errors. Provide a correct solution.

$(-8.2)^2 \div (-0.3) - 2.9 \times (-5.7)$

$= 67.24 \div (-0.3) - 2.9 \times (-5.7)$

$= 67.24 \div (-0.3) - 16.53$

$= 67.24 \div (-16.83)$

$\doteq 4.00$