1. What is the analysis of a blend consisting of 2 tons of Urea, 2 tons of MAP, and 1 ton of Potash?

   (2pts)

   

   46-0-0
   28-0-0
   11-52-0
   10-34-0
   18-46-0
   0-0-60
   21-0-0-24 (S)

   Urea (dry or liquid)
   UAN (28%)
   MAP – Mono-Ammonium Phosphate (Dry)
   Liquid Ammonium Polyphosphate
   DAP – Di-Ammonium Phosphate (Dry)
   Potash (Dry or liquid)
   AMS – Ammonium Sulfate

   Fertilizer Grade                  Fertilizer Name

   UAN                          $232 per ton
   Urea                        $390 per ton
   10-34-0                   $450 per ton
   DAP                         $495 per ton
   Potash                    $370 per ton
   MAP (Monoammonium phosphate) $500 per ton
   AMS (Ammonium sulfate)      $350 per ton

2. Dan Patrick is putting sixty pounds of the blend from above down per acre. What is his cost per acre for the blend?
2.

\[
\frac{60 \text{ lbs blend}}{1} \times \frac{4000 \text{ lbs MAP}}{10,000 \text{ lbs blend}} \times \frac{500}{2000 \text{ lbs MAP}} = \$6
\]

\[
\frac{60 \text{ lbs blend}}{1} \times \frac{2000 \text{ lbs PA}}{10,000 \text{ lbs blend}} \times \frac{370}{2000 \text{ lbs PA}} = \$2.22
\]

or

\[
\frac{390 \times 2}{2} = \$780
\]

\[
\frac{500 \times 2}{2} = \$1000
\]

\[
\frac{370 \times 1}{1} = \$370
\]

\[
\frac{1215}{10,000} \times \frac{60 \text{ lbs}}{1} = \$12.90
\]
3. What is the cost for one pound of NITROGEN in UAN? 2 pts
\[
\frac{100 \text{ lbs UAN}}{1 \text{ ton UAN}} \cdot \frac{1 \text{ ton UAN}}{1232 \text{ lbs UAN}} = \frac{\$0.414}{1 \text{ lb UAN}}
\]

4. A. You want to apply 45 pounds per acre of P2O5 in season using liquid 10-34-0 (liquid ammonium polyphosphate). How many gallons of 10-34-0 do you put down given that the density of the liquid is 11.64 pounds per gallon? 2 pts
\[
\frac{45 \text{ lbs}}{805 \text{ gal}} \cdot \frac{1 \text{ gal}}{11.64 \text{ lbs}} = \frac{1.37 \text{ gal}}{1 \text{ acre}}
\]

B. Given the price of 10-34-0 above, a price of nitrogen in urea of $0.43/pound of nitrogen ($/lb N)

i. What is the value of the nitrogen in a ton of 10-34-0? 2 pts
\[
\frac{2000 \text{ lbs}}{1 \text{ ton 10-34-0}} \cdot \frac{1 \text{ ton 10-34-0}}{100 \text{ lbs}} = \frac{\$8.6}{1 \text{ ton 10-34-0}}
\]

ii. Given your answer from (i) what is the value of P2O5 expressed in $/lb of P2O5? 2 pts
\[
\frac{\$450}{1 \text{ ton P2O5}} \cdot \frac{1 \text{ ton P2O5}}{1 \text{ ton 10-34-0}} = \frac{\$0.535}{16 \text{ lb P2O5}}
\]

\[
\frac{116 \text{ lb urea with right work}}{\text{OK}}
\]

\[
\text{0.66}
\]
5. Katie Nolan wants to apply 85 pounds of nitrogen, 40 pounds of P2O5, and 20 pounds of sulfur to an acre of land. She will use urea, MAP, and AMS. How much (lbs) of each fertilizer do you apply per acre? (lbs/acre)

\[ \text{N} \quad \text{P}_2\text{O}_5 \quad \text{K}_2\text{O} \quad \text{S} \]

\[ 85 \quad 40 \quad 0 \quad 20 \]

\[ \text{Urea} \quad \text{MAP} \quad \text{AMS} \quad 21.0-0.24 \]

\[ \frac{83.3 \text{ lbs AMS}}{\text{acre}} \]

\[ \frac{2.116 \text{ lbs MAP}}{5 \text{ lbs AMS}} \]

\[ \frac{17.493 \text{ N}}{100 \text{ lbs AMS}} \]

\[ \frac{76.93 \text{ lbs MAP}}{1 \text{ acre}} \]

\[ \frac{8.46 \text{ lbs MAP}}{1 \text{ acre}} \]

\[ 85 - 17.493 - 8.46 = 59.04 \text{ lbs N} \]

\[ \frac{59.04 \text{ lbs N}}{100 \text{ lbs urea}} \times \frac{1 \text{ acre}}{46.16 \text{ lbs N}} = \frac{128.36 \text{ lbs Urea}}{\text{acre}} \]