

Math 365 Partial solutions to Exam 1 (white version)

1. 10211_{three}
2. $301_{\text{five}}, 10111_{\text{five}}$
4. T, F, T, F, F
5. 5
6. (a) distributive property of multiplication over addition
(b) associative property of multiplication
7. (a) 160 (b) $a_n = 5 \cdot 2^{n-1}$
8. (Answers vary.) You could tell her that other numbers also have this property: $0 \cdot 2 = 0$, $0 \cdot 3 = 0$ etc. So it doesn't make sense to assign a value to $0 \div 0$, and we just say that it is undefined. More formally: By definition, $a \div b = c$ if c is the unique whole number for which $b \cdot c = a$. In this case, since 1 is not the unique number c satisfying $0 \cdot c = 0$, we say that $0 \div 0$ is undefined.
9. (There was no partial credit on this problem, other than arithmetic errors, since each part was not worth very many points.)
(a) 1225 (b) 2444 (There are $49-2 = 47$ terms, and so there are $\frac{47}{2}$ "pairs" each with a sum of 104, so we have $104 \cdot \frac{47}{2} = 2444$.)

Math 365 Partial solutions to Exam 1 (yellow version)

1. 11002_{three}
2. $341_{\text{five}}, 3311_{\text{five}}$
4. 6
5. (a) distributive property of multiplication over addition
(b) associative property of multiplication
6. (a) 160 (b) $a_n = 5 \cdot 2^{n-1}$
7. (Answers vary.) You could tell her that other numbers also have this property: $0 \cdot 2 = 0$, $0 \cdot 3 = 0$ etc. So it doesn't make sense to assign a value to $0 \div 0$, and we just say that it is undefined. More formally: By definition, $a \div b = c$ if c is the unique whole number for which $b \cdot c = a$. In this case, since 1 is not the unique number c satisfying $0 \cdot c = 0$, we say that $0 \div 0$ is undefined.
8. (There was no partial credit on this problem, other than arithmetic errors, since each part was not worth very many points.)
(a) 1225 (b) 2444 (There are $49-2 = 47$ terms, and so there are $\frac{47}{2}$ "pairs" each with a sum of 104, so we have $104 \cdot \frac{47}{2} = 2444$.)
9. F, T, F, T, F